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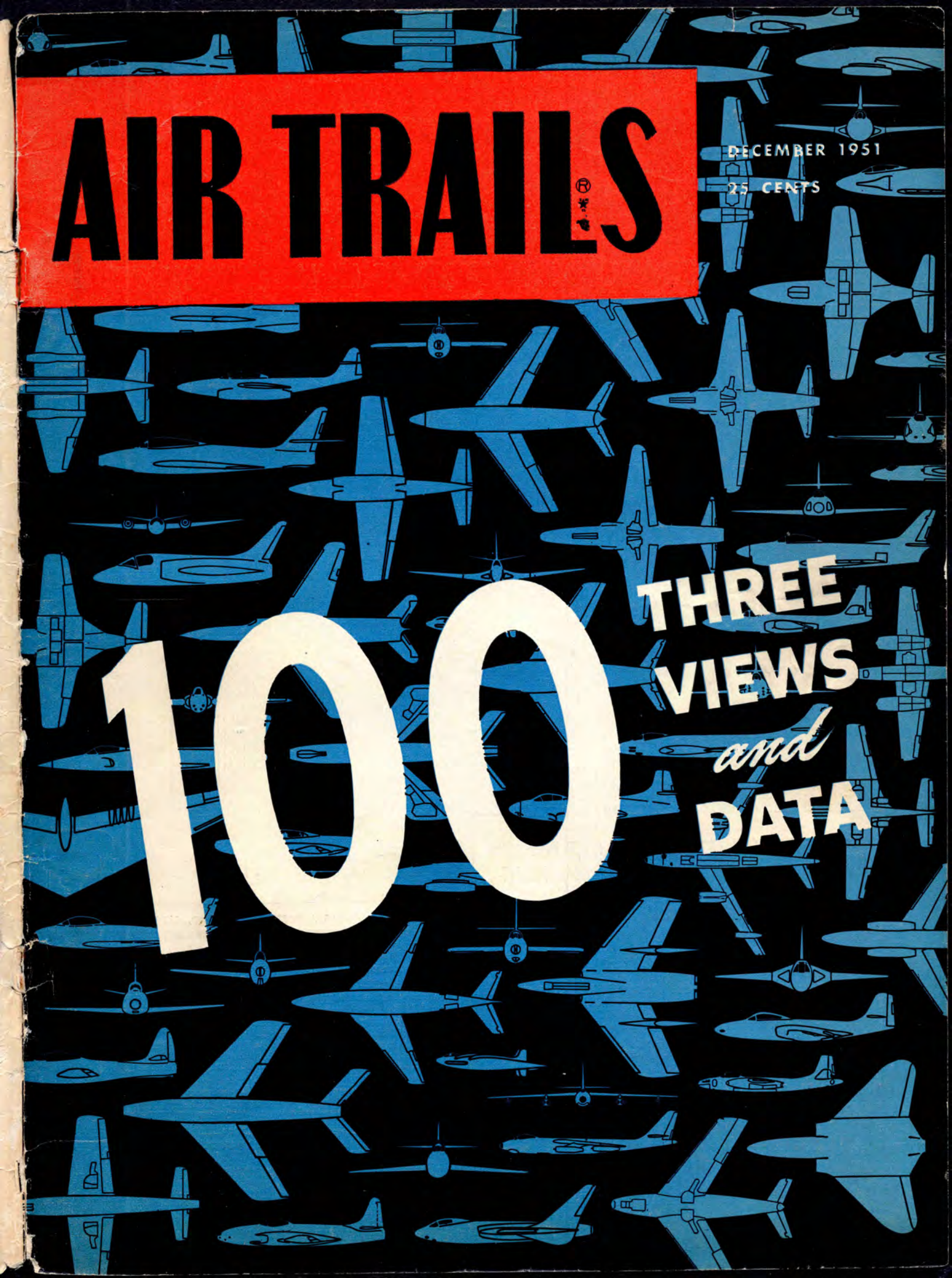

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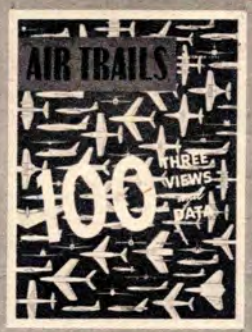

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FOR THE READER

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FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N. Y.

Corrections on Wakefield Meet Dope . . . Having just received your October 1951 issue I hasten to correct one or two misleading pieces of information contained in the "Dope Can" feature.

Relevant to the Wakefield, the view is given that the meeting was run on two successive evenings, the third round following in the morning. What actually occurred was that rounds 1 and 2 were held during the Saturday evening from 8 to 11 with the final round taking place early on the Sunday morning as indicated.

The next item is in connection with proxy flyers . . . "One of the South African proxy flyers was from South Africa" and even more surprising was the fact that . . . "He had hitch-hiked to Finland from his native land." Brother, you will get the Australian boys on your neck as the chap in question was Adrian Bryant from Australia! (This boy had actually hitch-hiked twice round Australia before setting off for Finland, and I have just received word from him to the effect that he is now in Helsinki working at the Finnish Aero Club and proposes to go on to Iceland and institute a model program in that country. What a boy!)

The next paragraph could cause a great deal of misunderstanding and should I think be rectified at the earliest opportunity. The inference could be read into this paragraph that as England made the top team showing *we* are advocating a change in the Wakefield rules for team instead of individual participation. This is entirely incorrect and although I know some countries favor a team rather than individual effort I am sure this would receive very little support in England. There is a great deal to be said in favor of an additional award to the best team, and quite frankly in view of the very crowded international calendar I think it would be a good move were the F.A.I. to donate the F.N.A. Cup (which is a separate team Wakefield affair) to the best team showing in the Wakefield itself, thus providing both an individual and a team trophy.

These numerous international affairs are all very well but they take money and that is the one commodity we non-Government sponsored countries are short of.

I shall be obliged if you will give the foregoing a little publicity, particularly the section regarding the team trophy, as I am very anxious that nobody should get the wrong impression of British intentions in this matter.

C. S. Rushbrooke, Leicester, England

How Fast? . . . In answer to a flood of reader letters as to which propeller-driven airplane is the fastest, herewith the following information. The F-51 Mustang holds at the present time the world speed record for propeller-driven mass-production airplanes. It was officially established by Jacqueline Cochran on April 9, 1951, over a 16-km. (10-mile course) at a speed slightly better than 469 mph.

This is an officially timed speed, recorded and recognized by the National Aeronautic Association and the Federation Aeronautique Internationale, whose main task is to time and homologate records. Timing is done by intricate electronic equipment and is accurate to better than 1/100th of a mile.

Speed recorded over closed-circuit courses tells the truer story of a plane's speed because it includes downwind, upwind and crosswind run. Speed on a cross-country flight may be hampered or accentuated by wind; and as to advertised speeds, published in various periodicals, or even released by the manufacturer, these are quite often inaccurate. Manufacturers usually quote the best speed attained at best altitude for engine performance. Temperature, amospheric pressure, and piloting technique all affect the speed of an airplane. Nor does an airspeed indicator tell the pilot how fast he is going. For example, if an ASI in still air (no wind) reads 250 mph at an altitude of 10,000 ft., and the outside temperature is 10 deg. F., the true airspeed of the airplane will be 300 mph. If at that altitude there is blowing a 40 mph tail wind, the ground speed of the airplane will be 340 mph.

Therefore, it is our policy in the magazine to quote only those speeds which were officially confirmed. The rest of it, like the speed of 470 mph. quoted for the Dornier Do. 335, by one of the readers, is only hearsay as far as we are concerned. According to German sources, the aircraft had a maximum speed of around 430 mph at 19,700 ft. and an economical cruising speed of 275 mph(!). See what we mean?

Gee Bee Brings Memories . . . Greatly enjoyed Doug Rolfe's "Gee Bee Story." It brings back memories of those old days when airplanes looked like airplanes, and not overgrown blow torches.

The enclosed print is of the little-known Gee Bee "Model A"—forerunner of a real racing stable from those amazing Granville Brothers. The Model A was a two-place side-by-side job, with a Kinner K-5 of 100 hp.

Gordon S. Williams, Seattle, Wash.

Gee Bee Model A

Bouquet from Dallas . . . The Exchange Clubs of Dallas desire to express to you their deep appreciation for the contribution you made to the success of the 1951 National Model Airplane Championship Meet which was held in Dallas July 23-29, 1951.

We were informed by the officials of the Academy of Model Aeronautics that it was the most successful Meet in the history of Model Aeronautics. We know that you will be pleased to learn that the assistance you gave us helped in a large measure to establish this record.

J. D. Dickey,
Chairman Executive Committee,
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Speedwagon 20 12" A	3.95
Speedwagon 30 15" B	4.95
Speedwagon 50 15" C-D	5.95
Sportwing 36" A-B-C	3.95
Squaw 39" A-B-C	5.75
Stinson Sta. Wagon 43" B-C-D..	5.50
Stinson ......22" AA	1.95
Streamliner 25" B-C-D	4.00
Stunt Runt 16" AA	1.00
Stuntmaster 40" B-C	5.95
Stuntwagon 30 44" B-C	5.95
Stuntwagon 58" D	7.95
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Taylorcraft 35" A.B.C.	2.95
Thunderbolt 40" C-D	4.95
Trail Blazer 24" B-C-D	2.95
Trixter Babe 20" AA	1.25
Trixter Invert Jr. 40" A-B	3.95
Trixter Prof. Trainer 32" A-B..	3.50
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Wing Ding 18" AA-A-B	2.25
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Yank 23" AA	1.50

BURIED IN THIS AD are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

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FUELS Express Collect ONLY (Cont'l U.S.A.) Total Minimum Order $3.00 (can be part fuel). No C.O.D.'s.

	Pts	Qts
For Ignition		
Ohlsson #1, #3	.85	1.60
Power Mist #6	.65	—
For Glo		
Ohlsson #2, #4	.85	1.60
Ohlsson AA	.85	—
Powermist Glo	.95	—
Powermist Spitfire	—	1.60
Ranger Glo	.90	—
Testors 39	.75	—
Dynaglo	.85	—
Ranger AA	.90	—
Blue Blazer #1	.70	—
Blue Blazer #2	.80	—
Ranger & Infant	.90	—
OK Cub	.85	—
Spitzy	.85	—
Supersonic 100	.80	—
Supersonic 1000	1.00	—
Red Devil	.65	1.15
Supersonic Ultra Glo ..	.90	—

Pouring Spout For pint cans.. .10
Hot Fuel Proofer .. .25, .35 & .45

PROPELLERS
Rite Pitch Stunt 8, 9, 10, 11, 12, 13, 14", in 4, 6 or 8 pitch .... .25
Rite Pitch 8, 9, 10, 11, 12, 13, 14", in 4, 6 or 8 pitch ...... .25

Scamper Plastic 5½" 3p., 6" 4p. .25; 9" 6p., .45 10" 10p., 11" 8 p., .65
Super Spl. 8", 9", 10" in 4, 6 or 8 p. .... .15
Veco 6" 3p, 4p, 7" 4p, 5p, 8" 5p, 6p, 9" 6p., 7p. (6"—25¢; 7" & 8"—30¢ 9"—35¢)
Kaysun 5/3, 5½/4, 6/3, 6/4, 6/5—15¢; 7/4—20¢
Also Ohlsson, Flo-Torque, Power, Top Flite, Tornado, Testors, etc.

RUNNING & TEST BLOCKS
E-Z Running Stand 1.50

METAL GAS TANKS
Dale Stunt Tanks—All Sizes .... .65
#1—1½x1¼x¾ #4—¾x1¼x¾
#2—2¼x1½x¾ #6—1½x1⅞x1
#3—2¼x1⅞x1 #12—¾x1x¾
#15—2½x1¼x¾
Froom: 1¼x1½ or 2 hor. or ver. .50
1¼x1¾x2 Sq. .... .80
1¾x ¾x2¾ Wedge ... .80
1¾x1x2¾ ½-Rnd Stunt .80
Also Macco, Berkeley, Acme, Pylon, Berkeley, etc.

IGNITION COILS
O.K. ....1.50 Rogers 2.00
O.K. Twin ..4.00 Wilco 1.95

CONDENSERS
Regular — .20.....Smith Metal .35

SPARK & GLO PLUGS
Arden Glo (V2 or V3) .... .85
Champion Glo V, V2, V3 .... .75
Champion V, V2, V3, VR1, VR2 .50
McCoy Hot Point .... .65
Ohlsson Glo (V, V2 or AA) .... .65
O.K. Glo-plug (V2 or V3) ..... .59
Plug washers .... .05

IGNITION ACCESSORIES
6 ft. Hook-up wire .... .25
Austin Booster Plug-in .... .30
Midget Switch: slide—.25 Turn .50
Ohlsson Snap-Pack .... .35

PROP SPINNERS
1¼"-85¢; 1¾"-90¢; 2"-.95; 2½"-1.10
3" Needle Nose 1¾" dia. 1.15
" " " 2" 1.20
Plastic 1½" .... .50
Scamper Plastic 1⅛", 1¾", 2", 2¼" .... .45

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2½" — 1.25 3" 1.75
Sponge Rubber (pr) ⅞"-1" 30¢
1⅛"; 1¼" 35¢ 1¾" .... .40
1¾"—60¢, 2⅜" .... .75
Tail Wheels ½"; 1" .... .15
Trexler Pneu. (pr) 1¼" or 1½" .40
1¾", 2"—50¢; 2¼", 2½"—60¢
2¾" 1.00
3" 1.25
3½" 1.50

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Shut-off Valve (state engine) 50¢ & .65
E-Z Minimount .... .85
.004 or .006 x 2—35' .... .35
.006 x 2—52' .... .50
Spinners (state engine) .... .60
Presto Starter (state engine) .. .25
Props (state engine) ....15 .25
Tanks (state engine) ...50, .60, .75
Neoprene (ft) .... .15
Fuel Meter .... .50
AA Unv. Coupling .... .50

MISCELLANEOUS
Batt. Box Pen., Medium, Regular .40
Brass Tubing 1/16", 3/32", 1/8" .20
Copper Tubing ⅛" OD, per ft... .20
Finger Guard .... .40
Fuel Pump ½ pt. .... .69
Presto Disc Starter .... .25
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Neoprene Tubing, per foot ..... .30
Transparent (reg. or AA) ft. ... .15
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No. 70 oil, 3 oz.—25¢; pint .... .60
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1/16"—25¢; 1/8"—30¢; 1/4".. .35
Silk per yard 1.50
Socket Plug Wrench, 4-way ..... .60
Spinnet Starter 5.00
Flexible Needle Valves: Cub, Royal Spitfire, Spitzy—79¢; Wasp, Baby Spit, Infant, Torp Jr., Torpo 49—50¢; Universal Needle Valve (A-B-C engines) 50¢; Flexible 75¢
Vibratac 2.00

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Aerogloss (20¢ and 60¢ sizes) Filler-coat, Cement, Plastic Balsa, Cessna Green, Cessna Gray, Orange, Yellow, Corsair Blue, Curtiss Blue, Fokker Red, Black, Lambert Gray, Aluminum, Stearman Red, Stinson Green, White, Cream, Maroon.
COMET (10¢ and 25¢ sizes) Cream, Gray, Red, Gloss Top Coat, Horizon Blue, Black, Midnight Blue, Orange, Maroon, Gold, Sanding Sealer, Silver, White, Yellow.
Speed-o-laq (10¢ and 35¢ sizes) Aeronca Orange, Army Yellow, Aeronca Yellow, Banana Liquid, Black, Gray, Chocolate Brown, Cub Blue, Cub Cream, Cub Green, Cub Yellow, Gloss Top Coat, Insignia Blue, Insignia Red, Metallic Blue, Olive Drab, Sanding Sealer, Silver, Stinson Green, Taylorcraft Cream, Taylorcraft Yellow, Tennessee Red, Maroon, Waco Blue, White, Undercoater, Dark Gray.
CLEAR DOPE Aerogloss 20¢ and 55¢; Comet 10¢ and 25¢; Speed-o-laq 10¢ and 35¢.
THINNER Aerogloss 20¢ and 45¢; Comet 10¢ and 25¢; Speed-o-laq 10¢ and 25¢.

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.008, .010, .012, .014 2-70 ...... .65
.008, .012, .016: 2-150' 1.00
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Berkeley Metal Handle 1.00
Controliner Flight Reel (with wire) AA—1.85; A-B............2.25
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Elevator hinges 4 for .... .10
E-Z Plastic Control Handle .... .85
Flex Lead-in Wire AA or AB 3 ft. .15
Instant-Use Handle, 5 or 6" .... .50
Luxon Clips A. B. C or D Pr .... .10
PYLON control lines
.008, .010, .012, .014, .016 dia. 2-52' lines .... .60
.008, .010, .012, .014, .016, dia. 2-70' lines .... .75
Flexible 2-52' 1.50; 2-70' 1.95
Pylon Control line Reel 1.25
Pylon Plastic Handle 5" or 6" .... .85
Reel Pal Reel 1.00
Simplex Handle & Reel 1.50
Stunt Bellcrank & Elev. Horn .. .25
Swivels, small 15¢ pr.; large .... .20
Tommy Handreel 1.75
U-Reely Contr.—7.50; cable 8.50
U-Reely Remoto 12.50
Veco Bellcrank .... .30 & .25
Wood Control handle .... .25

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Chris-Craft Express 25" BCD..	5.50
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Harco 25" B-C-D	6.00
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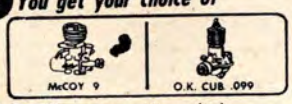

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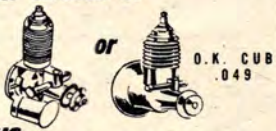

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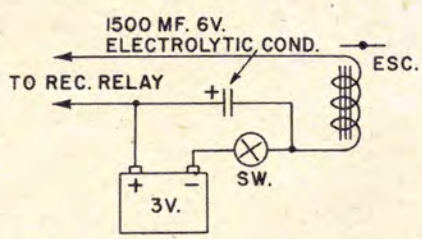
R/C

Around the modelplane radio-control circuit . . . comment and reports by a leading R-C authority

■ Ever hear of an R/C clambake? Well, we attended one recently (without the clams), and it was such a huge success we want to tell R/C flyers in other parts of the country about it so it can be tried elsewhere. Seems the Pittsburgh Flying Circuits have taken in lots of contests this past season, done lots of good flying and brought home lots of hardware, but all the time they never had a chance to really chew the rag with other R/C boys, compare equipment and ships, swap RK61's (these are becoming currency for some R/C'ers!) and just have a general good time flying without the worry of contest pressure. All very laudable, *so* . . .

Their president, Jim Schenck, and the other members decided to have an R/C Meeting—not a meet—and invite as many flyers as they could accommodate. Bud Schenck, Jim's brother, offered his home in central Pennsylvania as headquarters; his big house and yard are located across the street from a modern motel which was taken over for the weekend by R/C'ers, and furthermore, Bud's town, Selinsgrove, has a private airport not now in use. What a set-up! To make this short, the R/C boys started pouring in on Bud and his very model-minded wife, Sarah, on (*Continued on page* 10)



Escapement booster by Forrest Cole gives more positive action. He's an Atlanta R/C'er.

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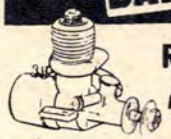

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Off to a Good Start!

Headed for interesting jobs under the Airman Career Program are Private Karl O. Engstrom, pictured at left above, from Willmar, Minn., and Private First Class Bob Jones, right, from Yakima, Washington. Recently enlisted, both men's aptitudes and interests showed that they would make good weather observers. Now they are getting the chance.

Sergeant Henry B. Wuenbold, Jr. from Cincinnati, Ohio, is instructing Karl and Bob on use of the Theodolite in tracking hydrogen balloons to determine wind speed and direction at various altitudes.

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RECRUITING U.S. ARMY U.S. AIR FORCE

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(*Continued from page 9*)

the Friday evening of Labor Day weekend, and from then on R/C planes, tongues, and pencils were flying continuously until the tired but very contented group started rolling homeward Monday afternoon.

There were about 30 active R/C men on hand, with wives and children bringing total attendance to over 50. Probably 25 planes were flown and some of them made as many as 20 or more flights during the three days. There were no serious crackups, only one flyaway (soon recovered) and more good flying than you'll see at most meets. Evenings were devoted to movies and slides of R/C flying, rules discussions and rag-chewing. Since some of the real hotshots of R/C were there, including Jim Schenck, Fran McElwee, Jim Walker, and Walt Good, the flying was top grade. There was no formal contest flying except for the Spot Landing event to settle which men would do the dishes.

Several of the contest enthusiasts tried out the Flight Pattern system of flying, as recently advocated by West Coaster Schumacher and others, and expressed considerable interest in it. There was combat flying with streamers (three ships were in the air many times), balloon busting (Walt Good was *too* successful on this and sez "Please, fellas, don't ever use 20 lb. nylon fishline to hold the balloon!"), aerobatics, and just plain flying for fun by everyone. Food and lodging were paid for in advance and the delicious meals, carefully planned by Sarah Schenck to keep the cost as nominal as possible (believe it or not, less than $5 per person), were prepared by the women and served Army fashion, and finished off with desserts brought along by each family.

Technical Notes. Some modelers have had success with "cooking" old and worthless RK61's (filament must be intact, of course!) to gain renewed life. Put 'em in the oven at 450 degrees for about a half hour. It won't help with some tubes but others have given 75 flights or more after being thus rejuvenated. Worth a try these '61-less days!

Heard recently of an English modeler who built an R/C tugboat; nothing startling, except he operates it on a *6 ft. garden pool!* Tug is only 9" long, has a standard XFG-1 single tube receiver, and escapement for the rudder. Drive is by electric motor, and the tugboat style hull had to be used because it was fat enough to allow all the batteries to be crammed in. The boat is all-balsa and no antenna is required. Here's a good project for those long winter days—sail it in the bathtub!

A long and interesting letter from Forrest Cole, 4141 Sequoiah Rd., Brookhaven, Ga., gives many details of his successful use of Control Research 2-tube circuit. Forrest has worked out his own layout, as shown by the two examples pictured. He also sends along an idea, sketched here, which he has used to get more positive escapement action. We suggest a switch at the point shown, as the low voltage electrolytics have quite a leakage current that would tend to slowly drain the battery. Be sure to put plus side of condenser to plus on batt., when you try it. This charged condenser should really kick the escapement even when the battery is low.

We are advised that F.C.C. is nearer now than ever before to granting a license-free R/C band (around 27 mc.). They still need to be convinced how many of the public really *want* such a band—this is your cue to write your Congressmen and urge them to get behind such rules-making. Don't fail to do this *NOW*. —HOWARD MCENTEE

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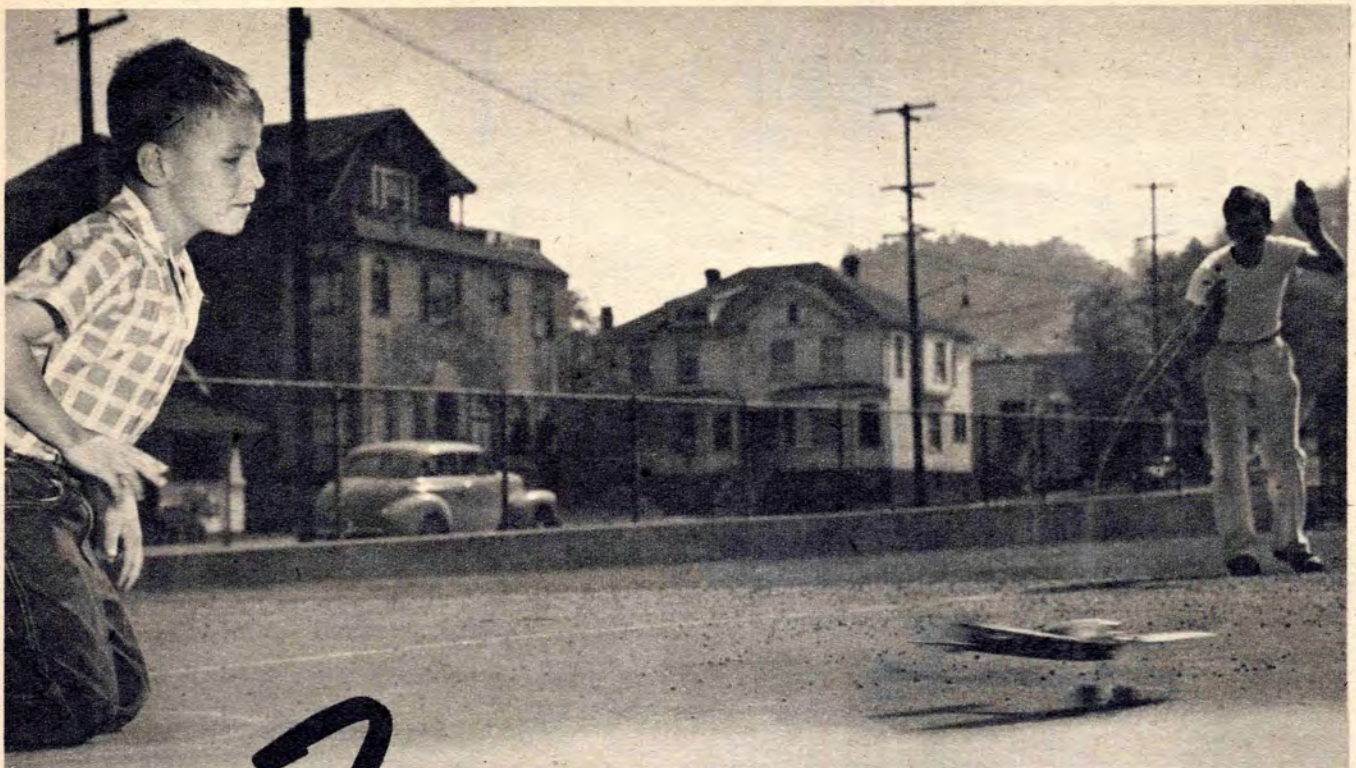

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air notes | AVIATION TODAY AND TOMORROW

FASTEST CROSSING of Atlantic made by second British Canberra flying to U.S. Test pilot Roland Beamont zipped 2,100 mi. from North Ireland to Gander, Newfoundland, in 4 hrs. 18 min. . . . FEMININE ALTITUDE record of 27,152 ft., by Mrs. Anna Louis Bragner of Venezuela in 125 hp Cub officially recognized by FAI. Flight made at Hybla Valley Airport, Va. . . . NORTH AMERICAN RB-45 Tornado reconnaissance bombers in service in Korea. . . . WAR WEARY B-25s in storage to be reconditioned, modified, becoming TB-25 twin-engine trainers for U. S. Air Force.

PUSH BUTTON WARFARE a reality with activation of 1st Pilotless Bomber Squadron at USAF Missile Test Center, Cocoa, Fla. Unit initially equipped with Martin B-61 Matador pilotless bomber, now in production at company's Baltimore, Md. plant. . . . U. S. NAVY has trained atom bomber crews. North American AJ-1 Savage & Lockheed P2V Neptune standard atom bombers.

DOUGLAS SKYROCKET research plane reached altitude of over 77,000 feet. . . . HIGHLY RECOMMENDED reading, "The Physical Nature of Flight" by Ray Holland Jr.—the best book on subject ever written. Author headed Lockheed's Aerodynamics and Flight Test Section during World War II. Uses word-pictures, anecdotes, examples instead of mathematics. Covers airplane design, flight performance, control, and stability. Helpful to model builders as basic ground work for understanding of what makes airplane fly. $4. Published by W.W. Norton & Co., Inc., 101 Poplar St., Scranton, Pa.

ALSO WONDERFUL: "So Away I Went," by William B. Stout, $4, Bobbs-Merrill Co., NYC. Story of Bill's fabulous career including early air-modeling activities.

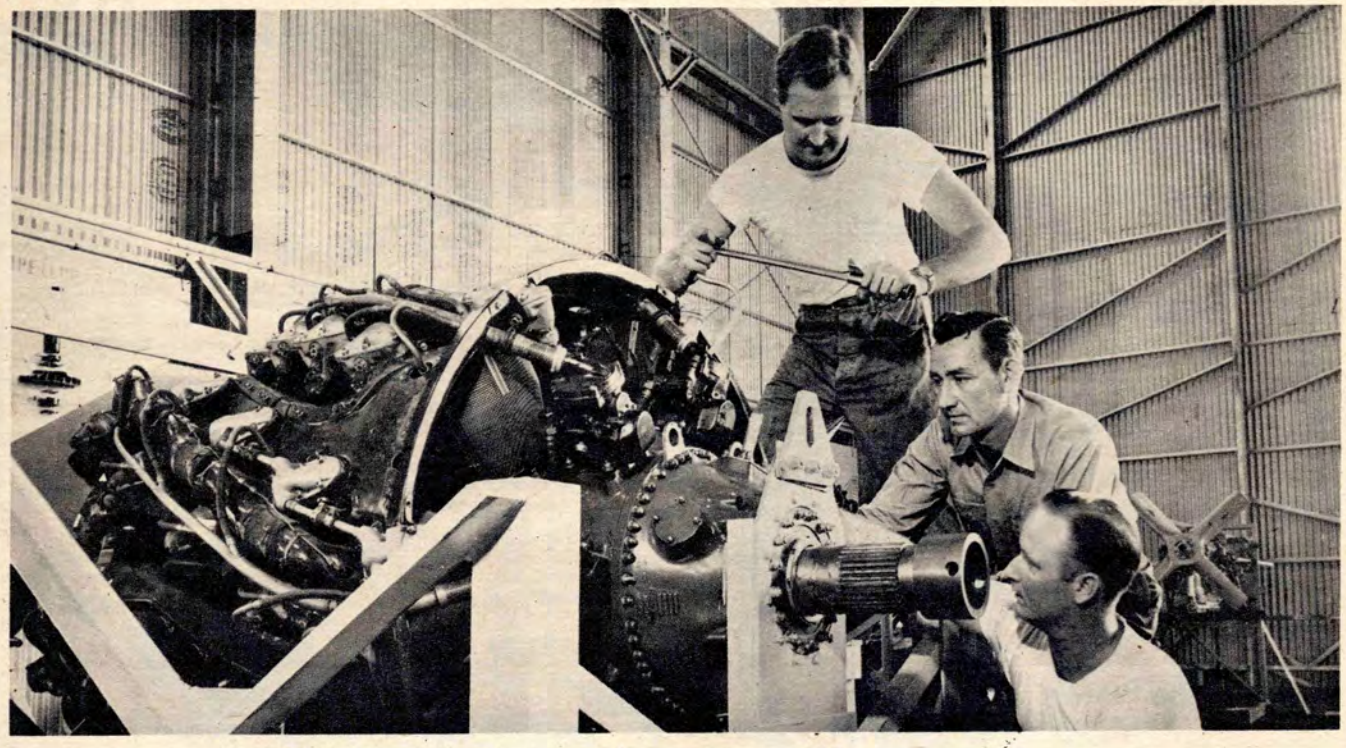
WANT MILDER WEATHER? Keep building cities, says TWA meteorologist Robert Kollet. Cities have dampening effect on weather; buildings create friction, snubbing air currents before they can build up to big storm. . . . BOEING B-52, eight-jet bomber soon in air.

LOCKHEED T-33, two-place training version of F-80, to be built in quantity by Canadair Ltd. of Montreal, for use in RCAF. . . . F2H-2P Navy designation for photo-recon McDonnell Banshee. Plane mounts six cameras in extended nose, operates from carriers.

THAT AERIAL NOMAD, Max Conrad, chalked up more non-stop flights with his Piper Pacer: from Winona, Minn. to Mexico City and a return from Mexico City to Washington, D.C.

Martin B-61 Matador, first U. S. pilotless bomber, one of the "fantastic weapons" mentioned recently by Congress, leaves its launching platform assisted by a jettisonable auxiliary rocket. First squadron to be trained in use of plane is now being activated.

HOW TO TAME 3000 HORSES



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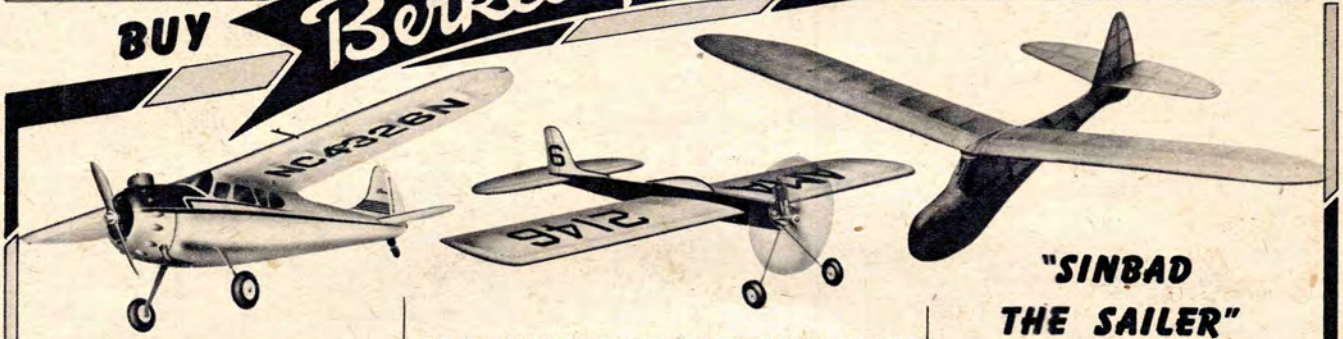

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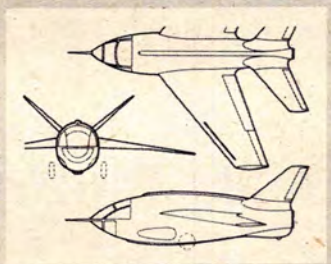
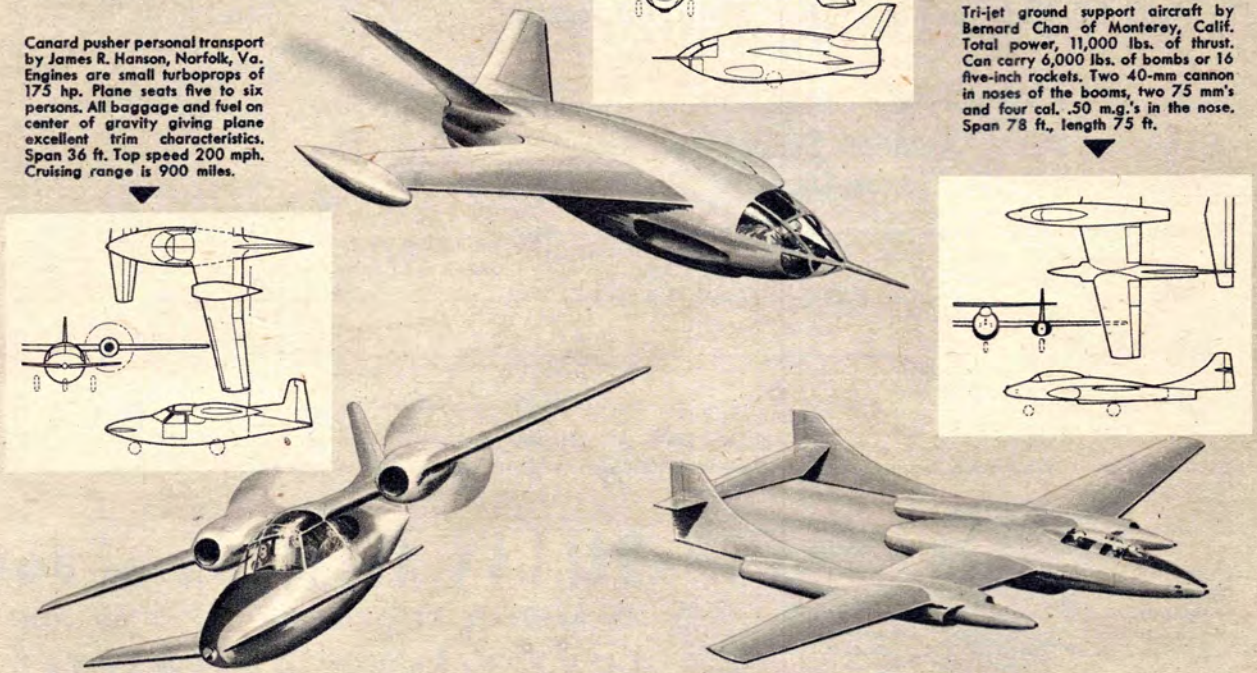
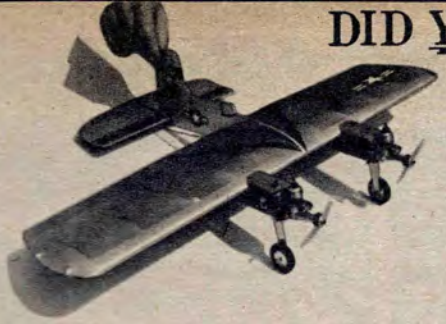


Best of the month. Jet-rocket interceptor by Eddie Argerake of Silver Springs, Md. Looks like sleeker version of Russian copy of Me-163. Narrow dorsal and ventral fins act as stabilizers in tight turns and under high thrust. 4,000-lb. thrust jet and rocket.

Tri-jet ground support aircraft by Bernard Chan of Monterey, Calif. Total power, 11,000 lbs. of thrust. Can carry 6,000 lbs. of bombs or 16 five-inch rockets. Two 40-mm cannon in noses of the booms, two 75 mm's and four cal. .50 m.g.'s in the nose. Span 78 ft., length 75 ft.

Canard pusher personal transport by James R. Hanson, Norfolk, Va. Engines are small turboprops of 175 hp. Plane seats five to six persons. All baggage and fuel on center of gravity giving plane excellent trim characteristics. Span 36 ft. Top speed 200 mph. Cruising range is 900 miles.





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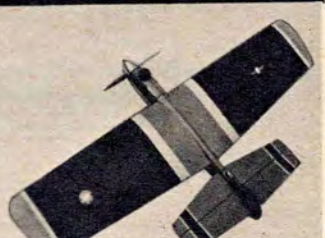

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Modelers all over the world and hobbyists throughout the East write Crescent for California supplies and Crescent comes through promptly with carefully selected and inspected merchandise! And remember Crescent's 15-day return privilege. New Crescent catalog FREE with order . . . otherwise just 10c . . .

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Retail Value $9.95

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Combination for $8.95

Kit only, $3.45

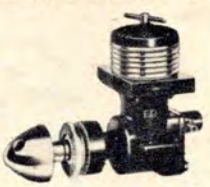
Crescent MODEL SHOP

5661 West Pico Blvd., Los Angeles 35, Calif.

For your merry, model Christmas here is a baker's two dozen of gift suggestions. Add to these the exciting new model items advertised throughout the issue and you'll be able to do your holiday shopping ahead of time. All data carefully checked, but is subject to change. Check boxes and show Pop.

Something that will provide years of service and insure better models is X-acto's Hobby Chest (#86). Tools, knives, special blades, etc. (☐ $12)

Vixen is F-B's newest; takes engines from .030 to .065. Built-up fuselage, precision die-cut parts. 126 sq. in., 21¼ inch wingspan. (☐ $1.95)



Model Craft Hobbies, Ltd., of Toronto, have the E.D. 2.46 cc (.15 cu. in.) diesel. Double ball bearings, ¼ hp, 13,000 rpm. F/F or U/C. (☐ $14.50)

"Zeebin" is Half-A free flight. Crescent Model Shop in L.A. Die-cut parts. Spans 33 in. .02 to .049 powerplants. The area, 176 sq. in. (☐ $2.50)

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Smallster antique auto kits are designed for easy step-by-step construction, contain precision built die-cut parts. Completely pre-fabricated, kits have realistic details on all plastic parts. Free catalogue available.

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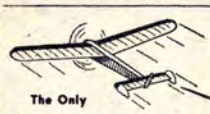

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PRE-FAB BOATS ARE 13 INCHES LONG.

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DIE-CUT BULKHEADS, HULL-COVERING AND CABINS.

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IN ADDITION TO THE W3-SALON CRUISER ILLUSTRATED, THE W1-FLYING BRIDGE AND W2-QUARTER DECK CRUISER ARE ALSO AVAILABLE NOW—** AT YOUR DEALER

Airlane MODEL COMPANY

Replica of Air Force insignia available from Monarch Military Products. Bronze & silver, it comes with big catalog of many items. (☐ 50¢)

Cavacraft comes up with new solid jobs: F-86 Sabre and MiG-15 (shown). Shaped parts, plastic bubble, decals. Scale, ¼". (☐ 75¢, each)

This flying scale won National event in 1941 *and* 1951—Interstate Cadet by Berkeley. Rubber power, span of 33 inches. (☐ $1.95)

Atwood Mfg. Co. reports Wasp .049 cu. in. disp. took two out of first 3 places in all Half-A events at Nationals. Some record, *n'est-ce pas?* (☐)

Republic P47D by Miniature Aircraft Corp. Spans 35¾ in., scaled 7/8 in. to foot. Length, 30½ in. For B-C engines. U/C operation. (☐ $5.95)

Smallster auto kits, authentic miniatures of old cars include 1908 Baker Electric. By Fador Mfg. Corp. Die-cut parts galore. (☐ $2.50)

Full Size Air Trails Plans—All Types

Thirty-five cents to Air Trails Plan Department, 304 East 45th St., New York 17, N. Y., brings you any one of the following sets of full-size working drawings: #1251—Bourgeois' Jezebel teamracer; Storey - Willard Korker; deBolt's Half-A Twin. #1151—Douglas Mailplane; F/F Glutton; Half-A Stunt Chum; ROG-ROW combo sport F/F. #1051—Rumpler Taube; The Fling; Dummy Lifter. #551—Fleet U-Control scale; Balsa glider trio; Clipper Chisai PAA-Load Model. #451—AT Interceptor; PAA Cargo Carrier; Whee-38. #351 — Matthews' Crowbar PAA-Loader f.f.; Beck's Petit Pete A/2'er; Ehling's Wakefield. #751—Stunt Rocket U-control stunt; Flying Wing free flight; Skylark combo parts. #951—Mac's Robot radio-control model; Folkerts Racer; and Ollie free flight. #1150—Wee Bee f.f. and U-Control, de-Havilland Moth; Screamliner "60"; Kinglet. #851—Screamin' Demon speed job; Nordic towline glider; Jetex Opel.

Be sure to order by number.

Highest & fastest flight made was in Douglas Skyrocket. Strombeck-Becker Mfg. Co. (StromBecKer) has solid kit, shaped parts. (☐ 69¢)

Fine engines made by Forster Brothers. G29 (.29 cu. in.) and G31 (.31 cu. in.) glow plug are popular, won B class at Nationals. (☐ $14.25)

"Sky Leader," says Enterprise, is completely carved Half-A model. Takes engines from .045 to .09; wingspan of 18 inches. (☐ $2.50)

Hudson Miniatures "Old Timers" from Scranton Hobby Center. Latest antique auto kit is famous 1906 Columbia Electric, 6½ in. long. (☐ $2.50)

Nothing more impressive than early planes; usually nothing harder to build. Model Plastic Products did all the work. Wright 1909 kit. (☐ $1)

Sterling Models offers Ryan S-T which has just the configuration to make stunt control liner. B & C engines. Span, 36". (☐ $5.95)

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RADIO CONTROL
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RECEIVER: Drilled bakelite receiver base with condenser and all eyelets attached, super sensative D-E Relay ready for installation; all elcctrical components, condensers, resistors, coils, potentiometer and chokes, ready for installation; all necessary contacts,

TRANSMITTER: Stamped and formed chassis with all holes punched; all necessary electronic components, resistars, condensers, coils and chokes, ready for installation; keying switch, soldering lugs and hardware; plywood case, color coded wiring, plus the dipole antenna wire.

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3A5 TRANSMITTER TUBE . . . 3.50

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★ All Star Features ★
- Shaped and Notched leading and trailing edge
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- Hardwood motor mounts
- PDQ diecut ribs
- Shaped fuselage
- Formed landing gear
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- Span 38" Length 26"
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New Fox 59 making reputation in stunt circles; big brother of Fox 35 (all 1st places in '51 Nats stunt), Fox 29R, Fox 29. (☐ $29.95)

PDQ Products' first in series of military type profile kits designed for combat flying. This is pre-fabbed F-51, 38" span. Rugged. (☐ $2.95)

Flying model is "Jeticopter" by American Telasco. Rotor has 3' blade; powered by two Jetex #100 engines. Kit includes one #100. (☐ $3.75)

Detailed miniature war tanks scaled 1 inch to 108 inches are offered by Polk's Hobbies. Big line of these tanks. Stalin III shown. (☐ $2)

Guillow "Barnstormer" by Lou Andrews flown to two 1sts in Nats by Andrews himself (open class) & Buzz Ferguson (sr. class.). (☐ $5.95)

Smoke "bombs" all stunters seem to have been waiting for, available from Great Western Mfg. Co. A gross for club? Good thought. (☐ $10.50)

You asked for it!

coming your way soon . . .

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MODEL ANNUAL

for 1952

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America's leading stunt plane!

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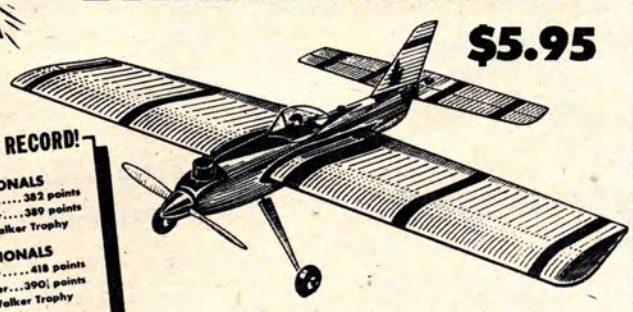
TRIXTER

BARNSTORMER

$5.95



Check THE RECORD!

1951 NATIONALS
Open event winner.....382 points
Senior event winner....389 points
Awarded Jim Walker Trophy

1950 NATIONALS
Open event winner.....418 points
Senior event winner....390½ points
Awarded Jim Walker Trophy

designed by *Lou Andrews*

1950 NATIONAL OPEN STUNT CHAMPION
1948 INTERNATIONAL OPEN STUNT CHAMPION

BARNSTORMER SPECIFICATIONS

Wing Span	47 in.	Weight	approx. 26 oz.
Wing area	470 sq. in.	Speed	60 to 75 M.P.H.
Length	30⅞ in.	Engine	.23 to .35 disp.

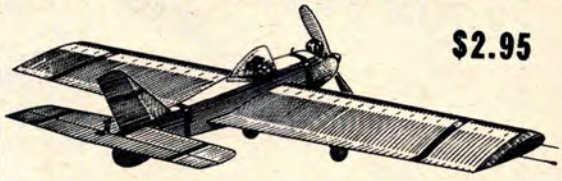
ALL PARTS COMPLETELY PRE-FABRICATED

First in '50...now first in '51

Baby BARNSTORMER

CLASS 1/2A CONTROL LINE STUNT MODEL

$2.95



A JUNIOR VERSION OF THE STUNT CHAMPION BARNSTORMER

The ideal stunt ship for ½A enthusiasts. Designed and tested by Lou Andrews, the "Baby" will do all the stunt patterns in the book — a real feat for a ship of this size. Wonderfully easy to build because the parts are accurately die-cut and ready for assembly. Recent tests of the Baby Barnstormer have been conducted by a staff member of Model Airplane News and the stunt performance of this ship was warmly endorsed in a feature article in the August issue.

SPECIFICATIONS

Wing Span.....23½ in.
Wing Area.....118 sq. in.
Length.....15¾ in.
Weight.....approx. 4½ oz.
Engine....035 to .049 disp.

Another fine TRIXTER gas model

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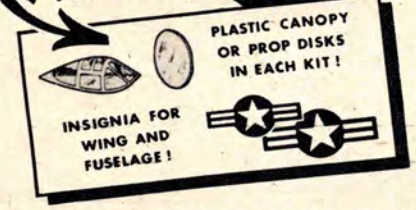

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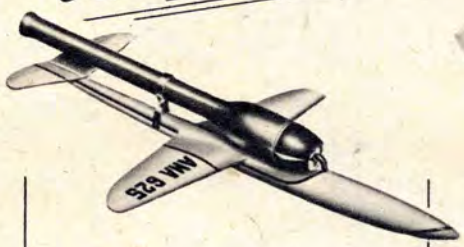
"LIL'-DUPER" ZILCH

For .19 to .29 Engines—42" Wingspan

Designed by Jim Saftig, this controline stunt kit comes complete with die-cut plywood and balsa parts, a one-piece spar, complete hardware, wheels, "U-Control" system, plans and instructions. Assembly is simplified by the sheet balsa fuselage sides and shaped and notched leading and trailing edges.

$3.95



"SUPER-SQUIRT"

For Dyna-Jet Engines—21" Wingspan

Designed for Dyna-Jet Engines 21" Span 160-180 m.p.h. speed class. 15-20 m.p.h. faster than the "Squirt", 48' National Jet-Speed Champion.

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For .29 to .35 Engines—70" Wingspan

"Sandy Hogan" is the ultimate in contest free-flight models. Its warp free "Hoganamic" wing construction is a real advance in model construction. It embodies the latest developments in warp-free design. The kit is completely pre-fabricated with precision die-cut and shaped parts, hardware, covering material and full size plans.

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The famous Wells Fargo Stage Coach which carried U.S. Mail and Gold shipments.

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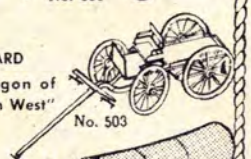

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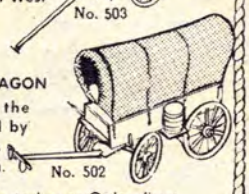

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Q and A

QUESTIONS ON ALL PHASES OF AVIATION AND MODELING WITH ANSWERS SUPPLIED BY AIR TRAILS' BOARD OF EXPERTS

F-86D . . . Will you please tell me the difference between the North American F-86D and the North American F-95, if any?

Bill Reynolds, Brawley, Calif.

• The YF-95 is the old designation. Production airplane is designated F-86D.

The G.E. Gyro-Glider . . . I am doing some experimental work on model autogyros. I would like to know the address of the General Electric plant to which I might write for information and three views of the General Electric Gyro-Glider.

Joe Freeman Britt, Lumberton, N. C.

• The address of the General Electric Company is Schenectady, New York.

Four-place Ercoupe . . . Do the people who manufacture the Ercoupe make a four-place plane under the name of Ercoupe? A friend and I are having quite a feud over this point and we would appreciate it if you could clear us up.

Dean Wray, Dayton, Ohio

• There was an experimental four-place Ercoupe built but to our knowledge it was never put into production.

Martin B-51 . . . Could you tell me if the Martin B-51 jet bomber is a Navy plane or not, and I would like to know the landing gear position.

Lanny Wyatt, El Paso, Tex.

• The Martin B-51 is an Air Force airplane. It has a tandem bicycle type landing gear in fuselage, one behind the other, and small outrigger wheels near wings tips.

What was CW-21? . . . In reading accounts of the "Flying Tigers" and the defense of Java in early 1942, a plane called the CW-21 is often mentioned. But no name or manufacturer is ever given. Could you give me any information on this?

Eric Hart, Milwaukee, Wis.

• The CW-21 was a fast-climbing interceptor built in 1949 by Curtiss-Wright Corp. It was very light, weighing approximately 3500 lbs. empty and was powered by an 850 hp Wright Cyclone. This gave the ship an amazing rate of climb of 5000 ft./min. or better. A number of them were sold to the Dutch who used them in their East Indies colonies. Curtiss-Wright claims a top speed of 330 mph for this ship, and its light wing loading, maneuverability and fast climb would undoubtedly have made it an excellent fighter against the Japanese Zeke. Unfortunately very few of them were built, and those in Dutch possession were mostly destroyed through bombing and strafing attacks. The wingspan of the airplane was 35 ft.

Decal Sheets . . . In so many of your model plane articles you mention Trim-Film decal sheets, and I wonder where I could obtain such sheets. None of the local dealers around Akron seem to have them, at least I can't locate them.

Don Markle, Akron, Ohio

• We suggest you contact Hobby Decal Specialists, whose address is 314 Elm St., Perth Amboy, N. J.

Martin Mercator . . . What happened to the Martin Mercator? I saw a picture of one once and haven't heard of them since.

And where can I obtain information about the Swedish Air Force?

Terry Wilson, Nashville, Tenn.

• A number of Martin P4M-1 Mercators are in service in the Navy with Squadron UP-21 based at Patuxent, Maryland.

For information about the Swedish Air Force, we suggest you contact the Swedish Air Attache, 2247 R Street, N.W., Washington, D. C.

Check FOR Fun

How Many of These MONOGRAM MODELS Have You Built?

☐ HELLCAT, Kit G-12

☐ BOEING KAYDET, Kit G-5

☐ NAVION, Kit G-11

☐ MONOCOUPE, Kit G-3

☐ PIPER CUB, Kit G-1

☐ AERONCA, Kit G-2

☐ CORSAIR F4U-5, Kit G-14

☐ LONG MIDGET, Kit G-6

☐ F-51 MUSTANG, Kit G-9

☐ WARHAWK P-40F, Kit G-15

☐ F-86 SABRE JET, Kit G-13

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SPEEDEE-BILT
flying models
Now 15 Models to Choose From
Each 85 Cents

For the Best Models and the Most Fun Build All of These

Thousands of fellows have built, or are building every Monogram Model. Many have written and told us so. How many have you built? Check off in the spaces provided, the models you have already built and select others for your collection from this page. No matter what your dish is Monogram has your favorite model for you—airplanes, race cars, speed boat and fighting ships.

All the hard work is taken out of Monogram Kits. All the fun is left for you. Big variety to select from and the biggest value you ever got for your money.

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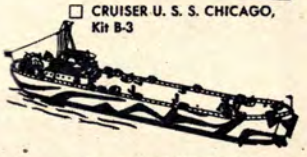

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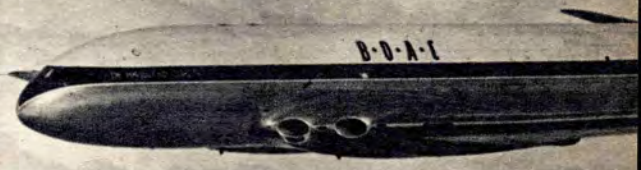
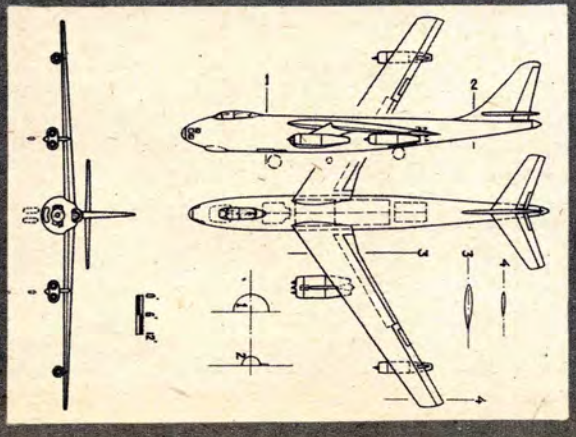
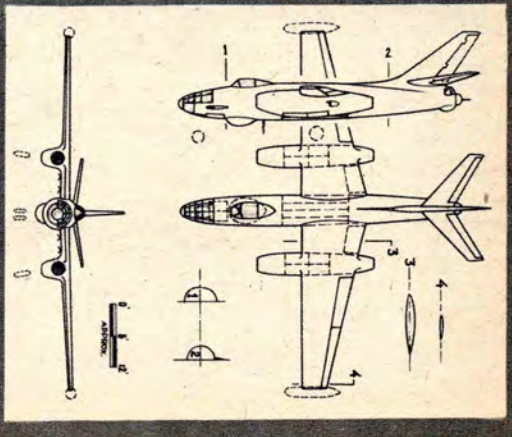
World's Leading Aircraft

On these pages are presented the one hundred most significant airplanes in the world, vividly showing the aeronautical progress of all major countries. Except for Russia, with its wall of secrecy surrounding aviation advancement, the United States and Great Britain are several laps ahead of other nations. Both countries are rapidly converting their Air Forces to jets, and the day will soon come when a piston-engine military aircraft will be obsolete. In the propeller-driven class, the gas turbine will take over. In the civilian air transport field, England is ahead of us with its jet and turbo-prop airliners, now in full production. France is also rapidly coming up with many well-designed military and civil planes.

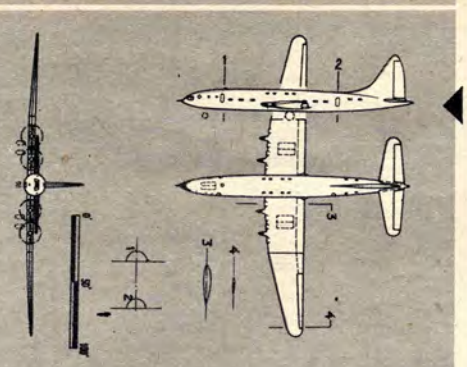


Left: Boeing B-47, USAF's six-jet medium bomber soon to replace the B-50. Crossed continent from State of Washington to Washington, D. C., in 3 hrs. 46 min. at better than 600 mph. Has normal crew complement of three; only armament, tail guns. A four-engine version, RB-47C, reconnaissance bomber, is also under construction. Range 4,000 mi. Right: Tu-10. Russia's latest twin-jet light bomber. Now in service with Red tactical units. May also be designated as Il-26. Judging from capabilities of Russian designers, it would not be surprising if they come up soon with something like the B-47.

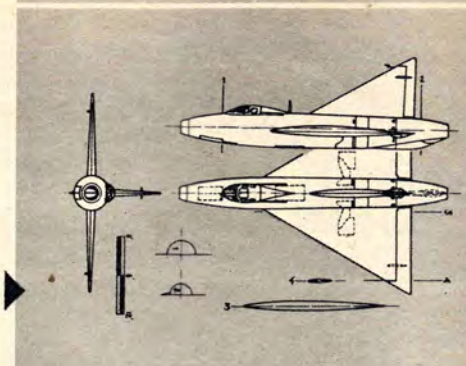




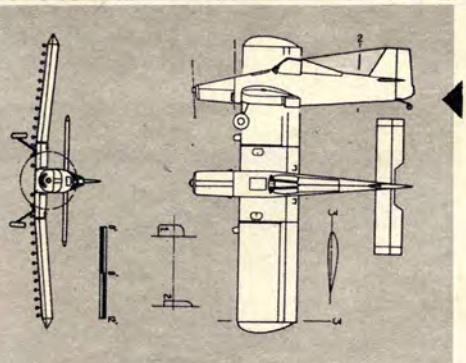
100 THREE VIEWS AND DATA



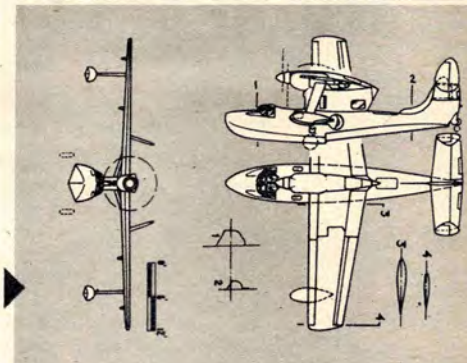
Bristol Brabazon, British airliner, largest passenger-carrying aircraft in world. Much discussed as to practicability. As big as our B-36, it is powered by eight 2,500 hp piston engines in pairs, each pair driving contra-rotating props through extension shafts. Despite successful flights, it is still unlicensed to carry paid passengers. A second Brabazon, Mark 2, with turbo-prop engines, is presently nearing completion.



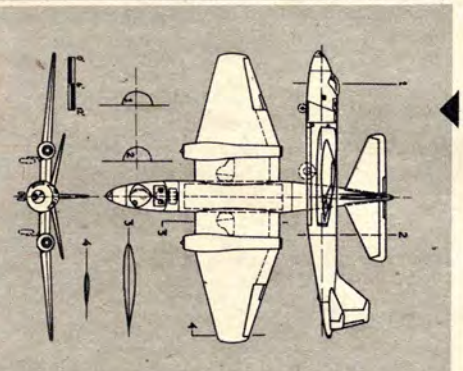
Consolidated Vultee XF-92A, Delta wing research interceptor now undergoing test flights at Edwards AFB. Recently equipped with a more powerful engine and afterburner. Has made more than 80 flights with the old powerplant. Wing sweep 60 deg. Elevons at trailing edge act both as elevators and ailerons. This type of wing has excellent performance at supersonic speeds and should prove excellent for fighter planes.



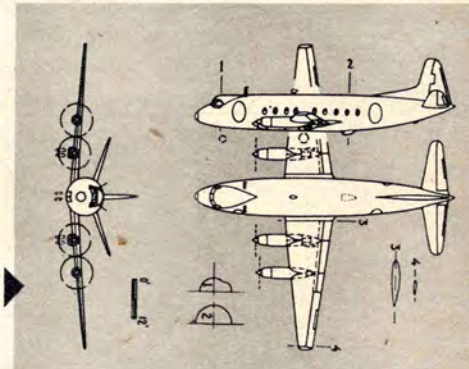
Ag-1. Agriculture plane designed by Texas A & M College, Personal Aircraft Research Center, under the direction of Fred E. Weick, designer of the Ercoupe. Can be used for dusting, spraying or seeding. Dusting bins in wings. Thick high-lift airfoil gives plane exceptionally good slow speed characteristics. Construction is all metal, has a specially reinforced cockpit with an overturn structure. Engine 225 hp Continental.



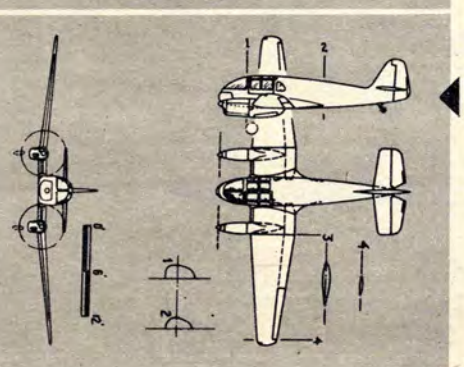
Supermarine Seagull, general utility amphibian used by British Navy for air/sea rescue, transport, training, recon and spotting. Variable incidence wings to facilitate water take-off. Stressed for operation from carrier deck. Has Rolls-Royce Griffon piston engine using water-methanol injection and rated at 2,500 hp, driving two three-bladed contra-rotating props. Horizontal tail has 20 degrees dihedral.



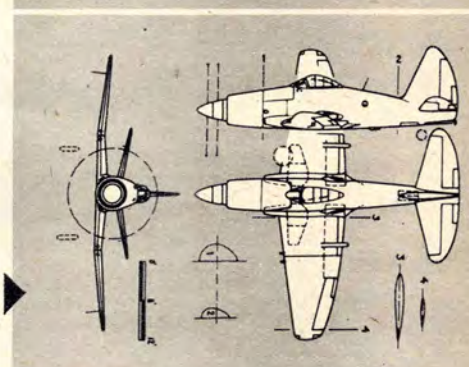
English Electric Canberra. First jet bomber designed and put into production for RAF. So successful was the aircraft, USAF decided to acquire a number for own use. Will be produced by the Glenn L. Martin Co. under designation of B-57A as light bomber for both day and night duty. Two Canberras recently flown from England to U. S. A. at trans-Atlantic record speeds. Two Rolls-Royce Avon engines of 6,000 lbs. thrust each.



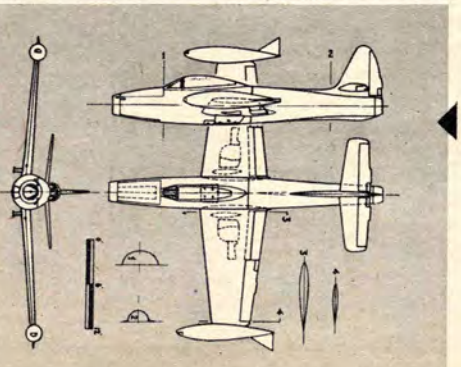
Vickers Viscount 700. British turbo-prop airliner; accommodation for 43 to 50 passengers. On order by several British airlines, will probably be the first turbine-powered transport to enter passenger service. Powered by four Rolls-Royce Dart turbo-prop engines of 1,400 hp each. Cabin fully pressurized; equipped with thermal deicing for wings and tail. Top speed at 25,000 ft., 340 mph. Range 1,900 mi.



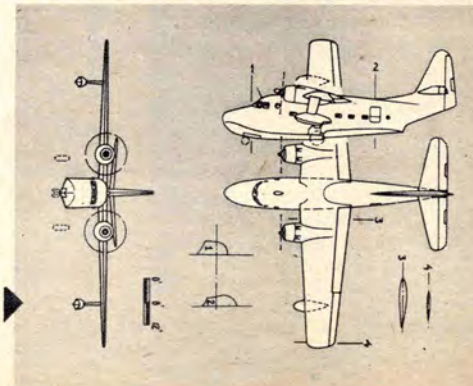
Aero 45. Czechoslovakian light twin-engine personal plane also used as trainer, aerial taxi and feeder liner. Carries four or five, in heated and soundproof cabin. Retractable landing gear electrically operated. Construction all metal. Can be equipped with either skis or floats. Power: two 4-cylinder air-cooled Walter Mikron engines of 105 hp each. Top speed 177 mph, cruising range of 930 miles.



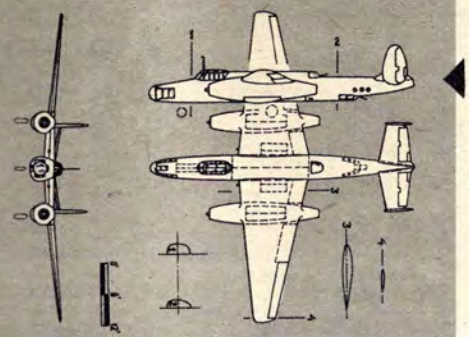
Westland Wyvern. Royal Navy's carrier-borne turbo-prop fighter; large number on order. Designed as "Strike" fighter, can carry a torpedo, bombs or depth charges. For own protection is armed with four 20-mm cannon. Wings fold hydraulically for stowage aboard carrier. The Mark 2, shown here, is powered by Armstrong Siddeley Python engine developing 3,700 hp. Two 4-bladed contra-rotating props.



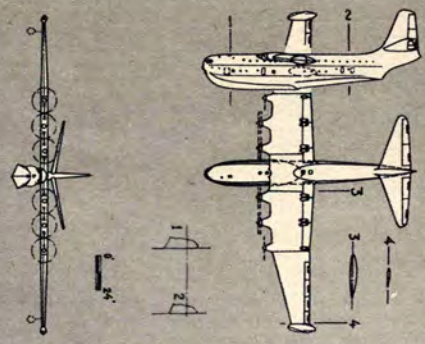
Republic F-84E Thunderjet, standard fighter-bomber of USAF. Has chalked up an impressive combat record since entering combat on Dec. 7, 1950, in Korea, where it flew in 10 months more than 10,000 missions. Besides its six cal. .50 m.g.'s, can carry variety of bomb and rocket loads. Powered by Allison J-35 engine of 5,000 lbs. thrust. Variant of this plane, the F-84G, is equipped for midair refueling.



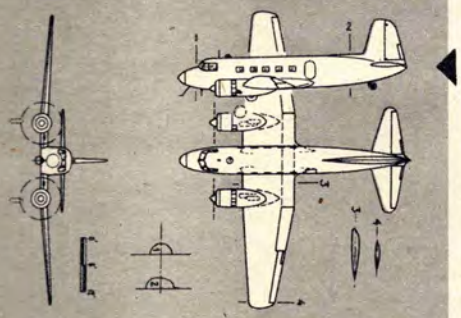
Grumman SA-16 Albatross. Extensively used by USAF for air-sea rescue duty. Navy version designated JR2F. Famous for ability to take rough sea; much service in rescue operations between Korea and Japan. Equipped with reinforced keel and tip skids, can take off from land, water, ice or snow. This version known as "Triphibian." Tip floats usable as auxiliary fuel tanks. A very rugged plane that has proved itself.



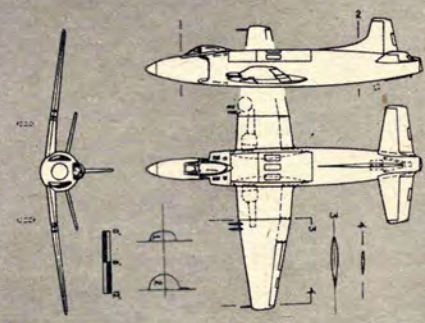
Tu-4. Russian twin-jet medium attack bomber designed by A. N. Toupolev. Is a jet version of the piston-engine-powered Tu-2 which saw successful service in World War II. Major difference between two is the longer and slimmer nose of the TU-4 and the turbo-jet engines, probably of axial flow type. Airplane made first appearance in 1947 and little heard of it since. Estimated top speed approximately 480 mph.



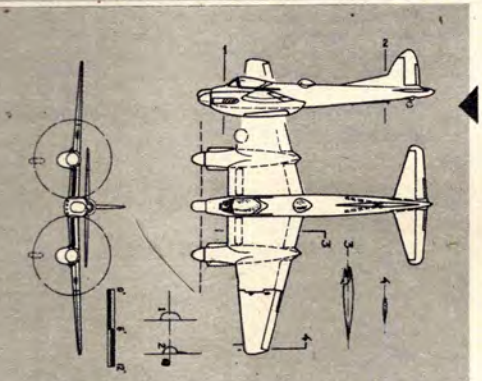
Saro Princess. Great Britain's postwar long-range flying boat now finishing construction at Saunders-Roe plant. Figure-eight cross-sectioned hull has upper and lower deck accommodating 105 passengers. Ten Bristol Proteus turbo-prop engines of 3,200 hp each mounted in six nacelles, two outboard nacelles carrying single units and the four inboard containing two engines each. Expected cruising range, 5,500 mi.



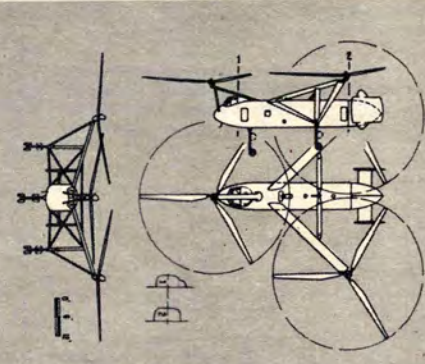
Yak-16. Not all Russian Yaks are fighters. This one is a twin engine feeder liner designed by A. Yakovlev, used on Soviet internal routes. Accommodates 13 passengers and a crew of two. Also used by the Red AF as military transport, and on number of Soviet satellite states airlines. Construction all metal, retractable main gear, fixed tail wheel. Two ASH-21 engines of 700 hp each. Cruising speed 190 mph.



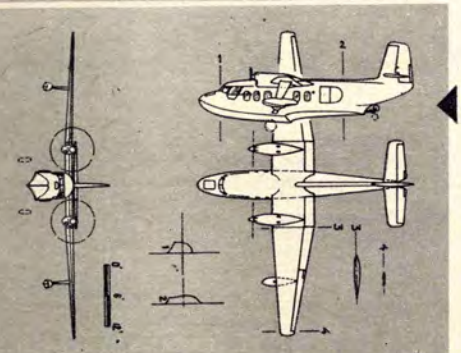
Supermarine Attacker. Carrier-borne jet fighter of British Royal Navy. This type, in 1948, held an international speed record over 100 km course of 565 mph. Descended from long line of Supermarine planes starting with famous Schneider Cup racers through the now immortal Spitfire. Prototype of Attacker incorporated wings of the Spiteful, last of Supermarine's piston engine fighters. Engine, 5,000 lbs. thrust Nene.



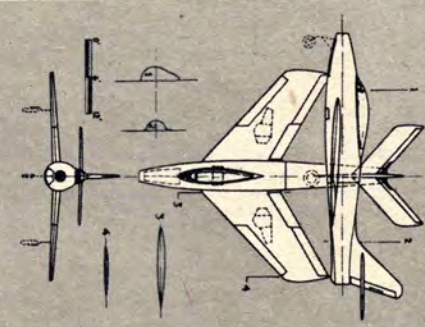
DeHavilland Sea Hornet. Carrier-based two-seat night fighter N.F., Mark 21. Direct descendant of D.H. Mosquito. Exists also in single-seat fighter and photo-recon version. Bulge on nose is radar. Usually used as Strike Navigator for single-seat Hornets. Can carry bombs, rockets or mines. Construction all-wood. Powered by two Rolls-Royce Merlins of 2,000 hp each, rotating in opposite directions to counteract torque.



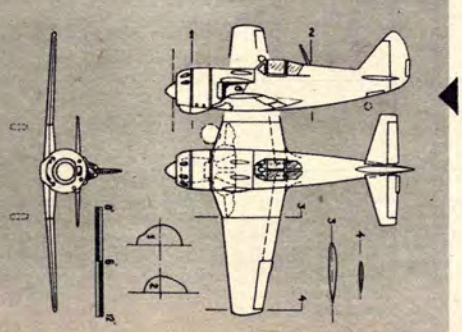
Cierva Air Horse. One of largest helicopters in world and the most powerful, this British machine has empty weight of over 12,000 lbs., is powered by a 1,640 hp, 24-cylinder Rolls-Royce Merlin engine driving three lifting rotors. Production version will carry 24 passengers besides crew of two. Other uses will be freight transport and crop dusting. Projected is a larger model powered by two 1,270 hp Rolls-Royce engines.



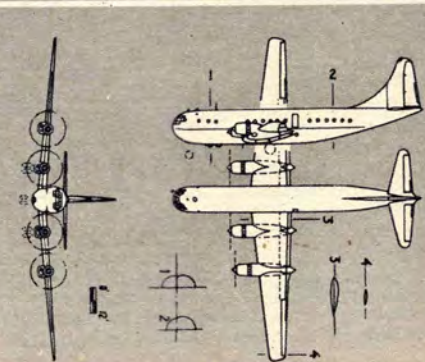
Short Sealand. British amphibian transport. Several in operation with British West Indian Airways. As amphibian it has a capacity for eight passengers, more as flying boat. Short take-off characteristics and top speed of 185 mph. Very economical to operate as it is powered by two 345 hp Gypsy Queen engines. Propellers are three-bladed de Havillands with full-feathering and reversing features. Range, 500 mi.



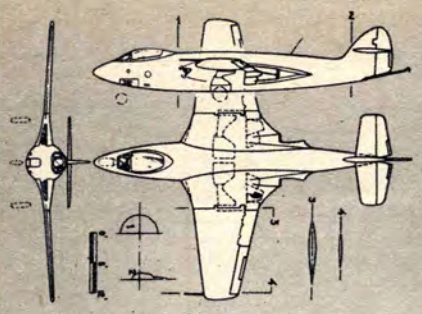
Republic F-84F. Swept wing and tail version of F-84E Thunderjet. Ordered in large numbers by Air Force. Considerably faster than its predecessor, possibly in sonic speed range. Production F-84F will be powered by Wright-built British Sapphire jet engine designated J-65, developing 2,000 lbs. more thrust than Allison which powers F-84E. Plane will also have a longer range, carry heavy bomb and rocket load.



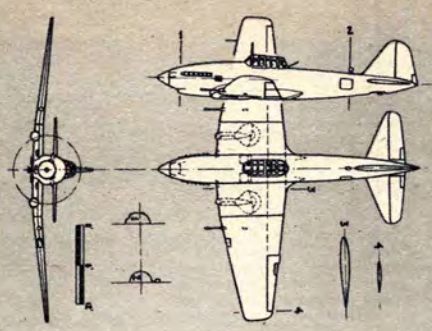
La-11. Russian piston-engine single-seat fighter designed by S. Lavochkin. Developed from series of successful La fighters used in WW II and known for their excellent maneuverability. This airplane is rather small in dimension, and quite light, weighing fully loaded around 8,000 lbs. Powered by an 1,850 hp two-row radial engine. Top speed 420 mph. Range is 800 miles; armament, three 20-mm cannon.



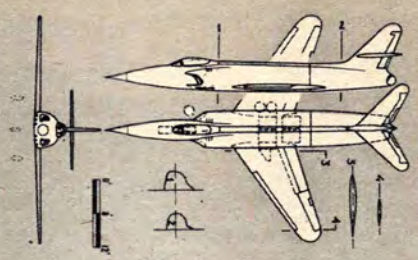
Boeing C-97 Stratofreighter. Extensively used by the Air Force and the Military Air Transport Service as a standard cargo hospital and personnel transport. Was originally a development of the B-29, the earlier version using same wing and power-plant installation. Later version, shown here, has wing and engines similar to those of the B-50. Four Pratt & Whitney R-4360 Majors developing 3,500 hp each.



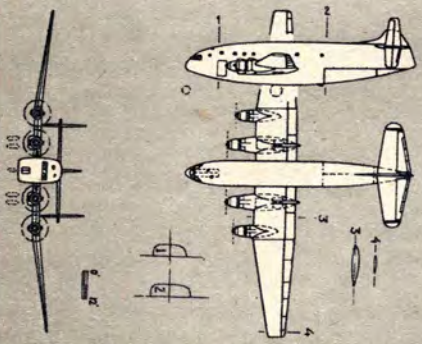
Hawker Sea Hawk. Carrier-borne interceptor in production for the British Royal Navy. Powered by one Rolls-Royce Nene engine of 5,000 lbs. thrust. Looks like twin engine craft with its two exhaust orifices, one behind each wing's trailing edge root. Armed with four 20 mm cannon in lower portion of the nose.



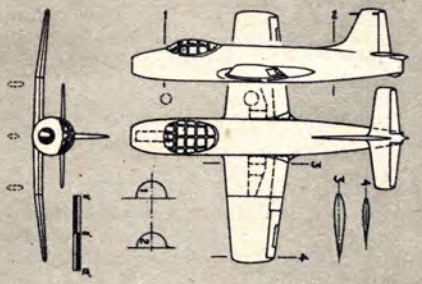
Il-10. Russian two-seat ground attack plane, successor to the famous World War II Stormovik. Engine and cockpit heavily armored against ground fire. Has two large caliber guns in the wings and one of smaller caliber in the aft powered turret. Engine 2,000 hp.



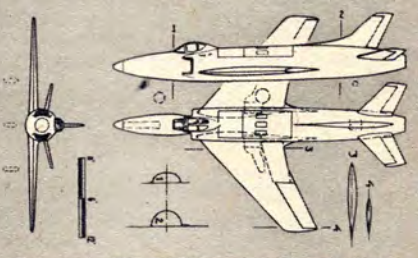
Lockheed XF-90. USAF experimental penetration fighter. Still undergoing test flights at Muroc. Fate as yet undecided. Its purpose is to fight deep inside enemy territory. Carries very large supply of fuel. Fully loaded it weighs as much as a DC-3 transport. Wing is swept back 35°. It is powered by two Westinghouse turbo-jet, axial flow engines each rated at 3,000 lbs. of thrust. Top speed in 700 mph range



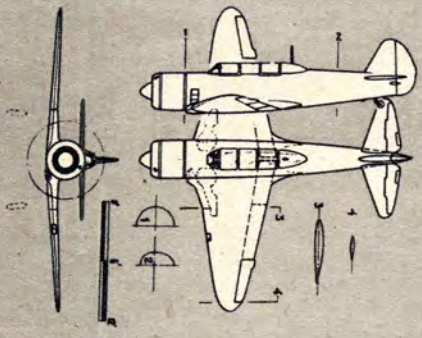
Breguet 76-3 Deux Ponts (two-decker), France's heavy transport capable of carrying 100 passengers or over 30,000 lbs. of freight. Engines, four 2,000 hp P&W's. Twelve planes to be used by Air-France.



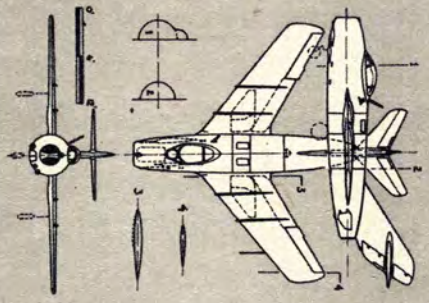
Fokker S-14. Holland's first jet aircraft. The plane is a two-place jet trainer, probably the first one so designed. Instructor and student sit side-by-side in ejector seats. Will be used for instrument, navigation and tactical training of Dutch jet pilots. It is powered by one Rolls-Royce Derwent engine of 3,500 lbs. thrust. Top speed 440 mph.



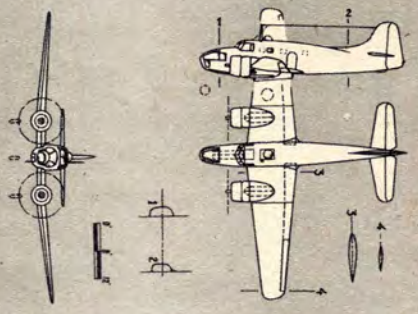
Supermarine 535. British experimental carrier-borne jet fighter powered by a 5,000 lb. thrust Rolls-Royce Nene engine. In production version, powered by the 6,000 lb. thrust RR Avon engine, this aircraft will be known as Swift. Plane is somewhat similar to the Attacker, but has swept-back wings. In comparison to U. S., England, while having started earlier, has fewer carrier-based jet fighters, though eventually its Navy will be fully equipped with jets.



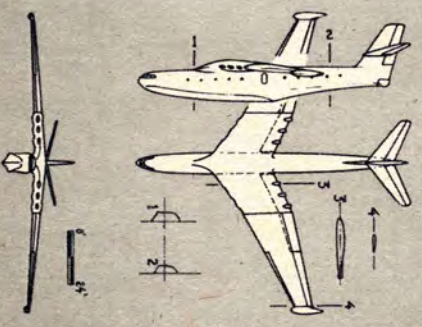
Yak-11. Russian intermediate trainer. Is quite small compared to ours. General appearance is similar to piston-engined Yak fighters, with the exception of radial engine of 700 hp. Speed about 250 mph.



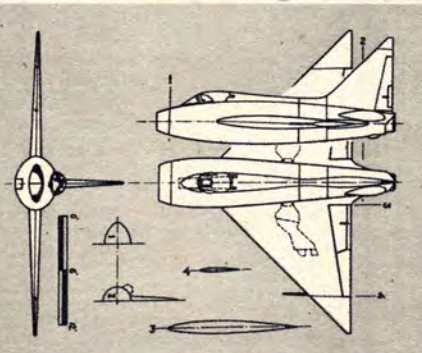
MIG-15. Russia's standard operational fighter now active in Korea with Chinese communists. Is reported to be slightly faster than our F-86 Sabre, but so far has failed to live up to its advertised possibilities.



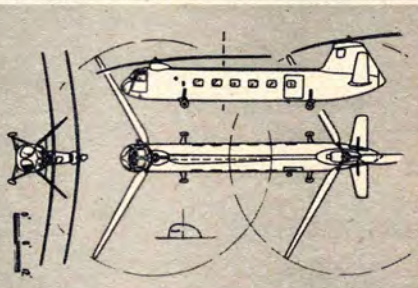
Fokker S-13, Holland's advanced crew trainer used for bombardier, navigation & radio training. Construction is all-metal, cabin has desks for students and instructors. Powered by Two 600 hp Pratt & Whitney engines.



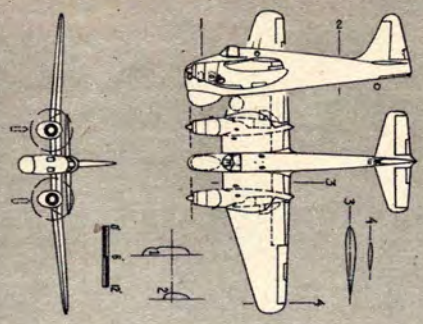
Saro Dutchess. Jet propelled, medium-range flying boat designed by the British firm Saunders-Roe. Will be powered by six D.H. Ghost engines of 5,000 lbs. thrust each. Will accommodate 74 passengers.



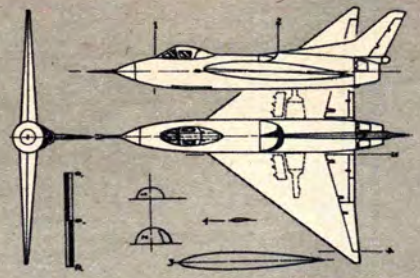
Boulton Paul P.111. English Delta wing experimental plane for research work in triangle-shaped wing characteristics. Is equipped with tail parachute to facilitate landing. Engine 5,000 lb. thrust.



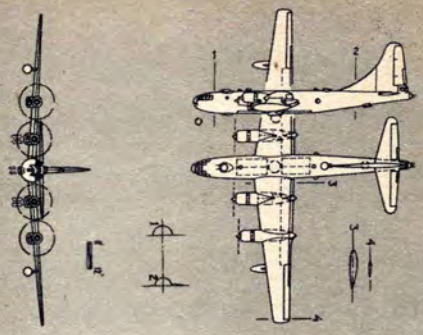
Bristol 173. England's latest helicopter. Bears marked resemblance to our Piasecki design. To be used as medium or short range transport accommodating 13 passengers and baggage. Can also be converted to freighter. Powered by two 525 hp Alvis Leonides engines located at each end of the fuselage just underneath the rotors.



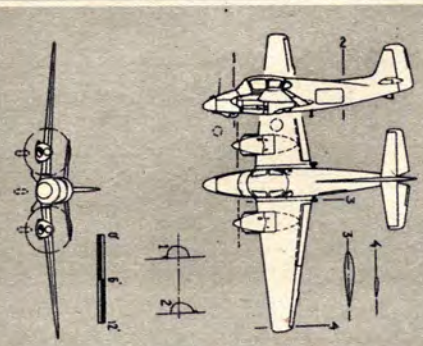
Short SB-3. Britain's anti-submarine aircraft. Powered by two Armstrong Siddeley Mamba turbo-prop engines of 1,500 hp. each. Plane is development of the Short Sturgeon reconnaissance craft. The bulge under the nose is radar.



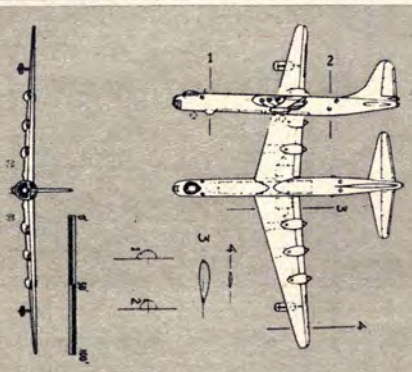
Avro 707B. Another British Delta research airplane. Powered by a 3,600 lb. thrust Rolls-Royce Derwent engine. Air intake for the powerplant on top of fuselage just ahead of the dorsal fin. Plane has no flaps, uses fence-type dive brake and tail chute for landing, which, typical of all Delta wings, is at an extremely high angle of attack. Air intakes are at wing root's leading edge.



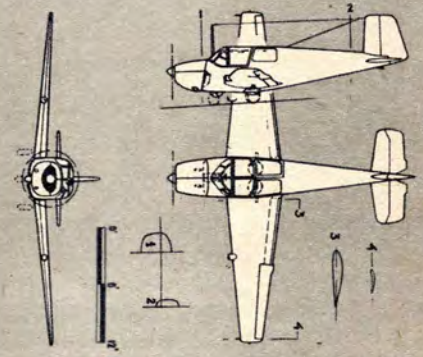
Boeing B-50D. USAF standard medium bomber, a faster and more powerful version of the B-29 Superfortress. High vertical fin folds to fit in hangar. Engines four 3,500 hp Pratt & Whitneys. "D" model has auxiliary wing tanks.



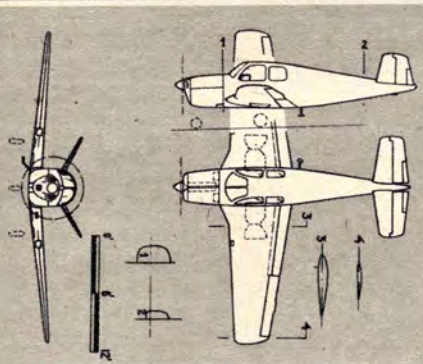
Morane-Saulnier M.S.703, French all-metal six place light transport, can be used also as hospital plane in which version it carries four passengers and two stretchers as well as medical equipment. Powered by two 200 hp V-8 inverted air-cooled engines.



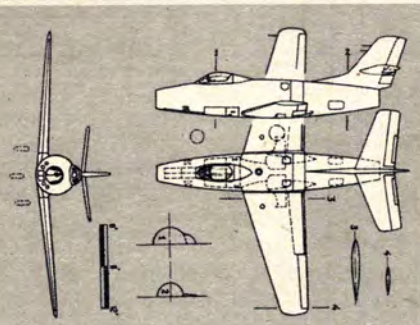
Consolidated Vultee B-36 bomber. Mainstay of the U. S. Strategic Air Force. Its six piston and four jet engines delivering over 44,000 hp, it is at the present the most powerful aircraft in the world.



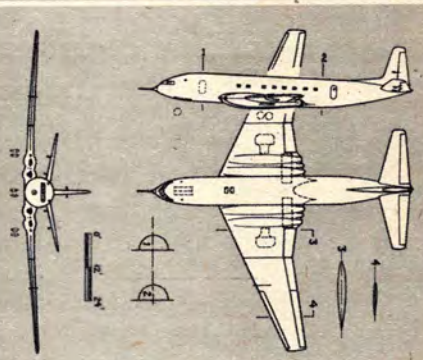
SK 50, Sweden's light military trainer, development from the SAAB Safir. Seventy-five are on order by Swedish AF. 190 hp Lycoming. Speed 172 mph.



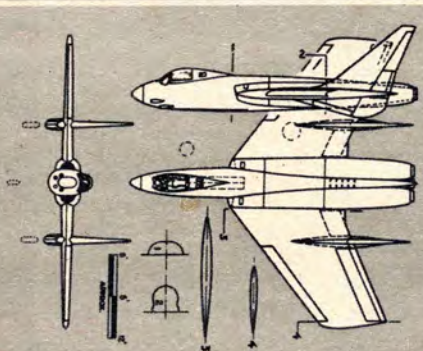
Beechcraft Bonanza. One of the most popular personal aircraft in U. S. Possesses excellent flight characteristics and speed. Could be called private pilot's Cadillac. Latest has 205 hp Continental.



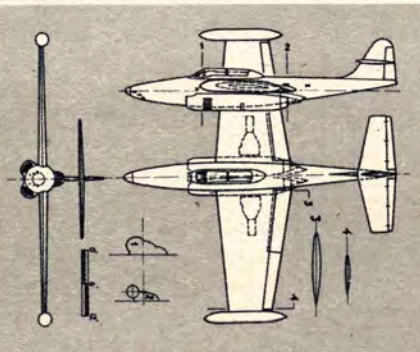
Dassault M.D.450 Ouragan (Hurricane), French single-seat interceptor-fighter. Will probably be soon standard fighter of the French AF. Powered by an Hispano-Suiza built RR Nene engine, plane is in 600 miles per hour class.



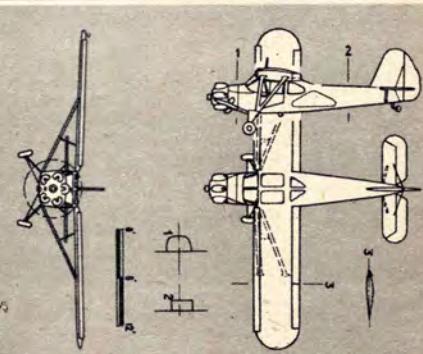
De Havilland Comet. First production jet airliner in the world, three examples of which are already flying with British Overseas Airlines, though do not as yet carry revenue passengers. Cruising speed of 490 mph.



Vought F7U-1 Cutlass. Reputed to be U. S. Navy's fastest fighter. It is powered by two Westinghouse J-34 engines of 3,000 lbs. thrust each equipped with Solar afterburners. The F7U-3 model will have more powerful engine.

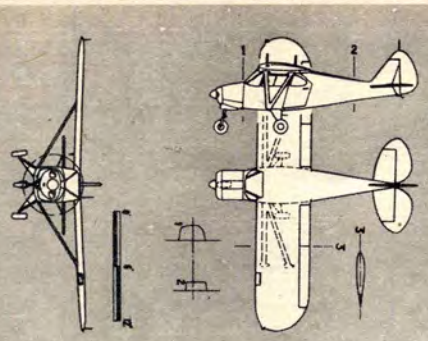


Northrop F-89 Scorpion. USAF all-weather fighter. Carries a crew of two, pilot and radar operator. Powered by two Allison J-35 engines of 5,200 lbs. thrust each. Armed by six 20 mm cannon; weighs 30,000 pounds.

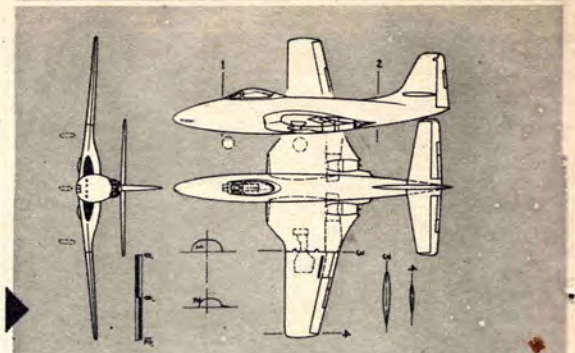


Yak-14. Russia's equivalent of our light liaison plane also used by Soviet flying clubs. Helmet type engine cowling typical of that country's small planes. Powered by a 145 hp engine. Maximum speed is 135 miles per hour.

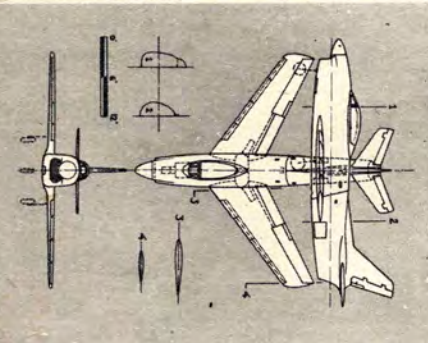
100 THREE VIEWS AND DATA



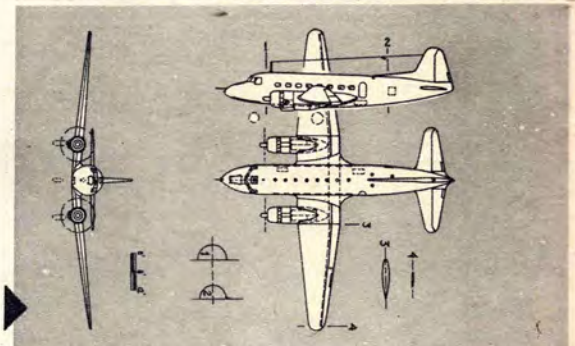
Piper Tri-Pacer. Product of Piper Aircraft Co. of Lock Haven, Pa., which, without doubt, has built more light planes than any manufacturer in the world. The Tri-Pacer is essentially a tricycle gear brother of the four-place Pacer. The nose wheel is hooked up with rudder pedals, which simplifies taxiing. Rudder is interconnected with ailerons permitting use of either rudder or aileron alone during flight. Engine is 125 hp Lycoming.



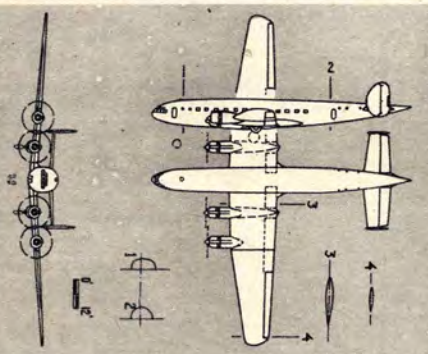
McDonnell F2H-2 Banshee. Standard U. S. Navy carrier-based twin-jet fighter. Appropriately named because of piercing whine of its two Westinghouse J-34 engines with total thrust of over 6,000 lbs. Plane capable of high rate of climb said to be around 9,000 ft. min. Has reached altitude of over 50,000 ft. Exists in night fighter version F2H-2N and as F2H-2P photo and recon plane. All-weather model F2H-3 to be delivered in '52.



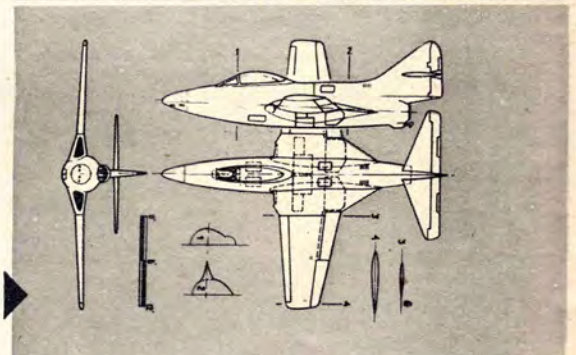
North American F-86D. All-weather fighter version of F-86A and E Sabre. Nose portion and air intake modified to accommodate search radar gear. Powered by General Electric J-47 engine of 5,200 lbs. thrust equipped with afterburner raising total power to well over 7,000 lbs. Armament: 24 2.75 in. Mighty Mouse, air-to-air rockets also developed by North American. F-86D is in 670 mph plus class (unofficial).



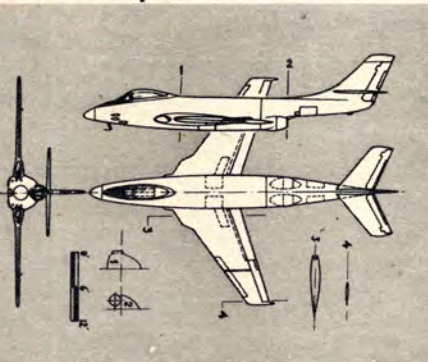
Saab 90B Scandia. Sweden's very successful 24-passenger twin-engine airliner. Designed not only for domestic use but also for export. Prototype, for this purpose, in 1949 made extensive demonstration flight which took five months, covered three continents, Africa, North and South America for distance of 60,000 mi. Is powered by two Pratt & Whitney R-2180 engines capable of developing 1,800 hp with water injection.



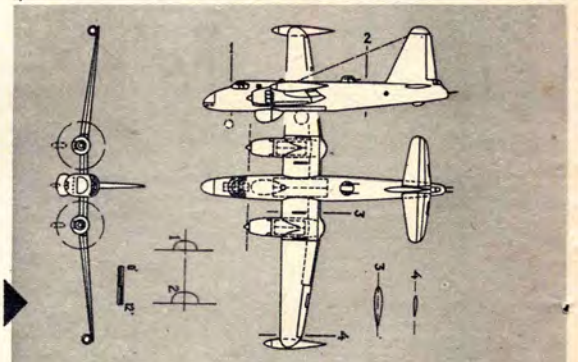
Breda Zappata B.Z.308. Italian four-engine transport accommodating from 64 to 80 passengers depending on cabin layout. Somewhat similar in looks to our Constellation though larger. British Bristol Centaurus engines develop 2,500 hp each, driving five-bladed propellers. One of its designers, Filippo Zappata, was co-designer of French Bleriot plane Joseph LeBrix which in '30 set world duration record of 67 hrs. 53 min.



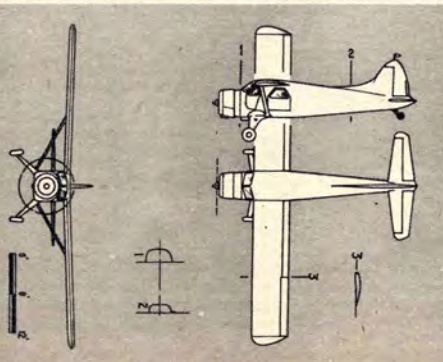
Grumman F9F Panther. U. S. Navy's carrier-based jet fighter. Originally projected in 1946 as a four-jet plane using small Westinghouse J30 engines, and designated XF9F-1. Present configuration started with the F9F-2 using a Pratt & Whitney J-42 engine (actually a Rolls-Royce Nene). F9F-3 is powered by an Allison J-33 of 5,400 lbs. thrust, F9F-4, improved J-33, 6,000 lbs.; and F9F-5, 7,000-lb. J-48.



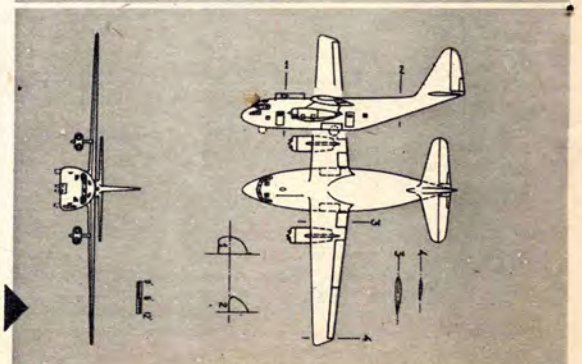
McDonnell XF-88 Voodoo. USAF twin-jet penetration fighter. First flew in Oct. 1948. Two built under experimental contract which terminated in Aug. 1950. Fate yet undecided but may be ordered into production. Designed to act either as fighter-bomber in enemy territory or as bomber escort. Powered by two Westinghouse J-34 engines mounted side-by-side in fuselage; air intake ducts in wing root leading edges.



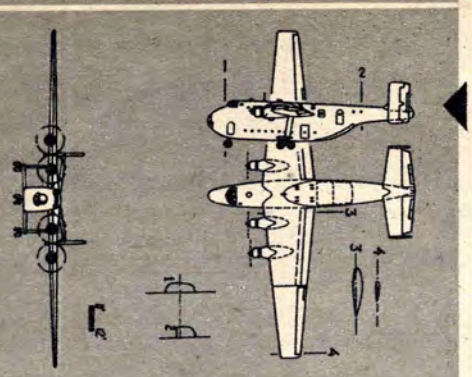
Lockheed P2V Neptune. U. S. Navy patrol bomber. First came into fame when model P2V-1 piloted by Comdr. Thomas Davis and a crew of four set an international non-stop distance record of 11,235 mi. from Australia to Columbus, Ohio. A P2V-3 was first Navy heavy bomber to take off successfully from a carrier. Later models, P2V-4 with solid nose and P2V-5 with nose turret, powered with 3,000 hp-plus Turbo-Cyclones.



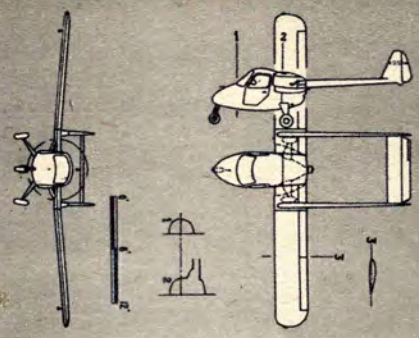
De Havilland Beaver. Originally designed by the de Havilland Co., of Canada, as a bush plane, capable of taking off and landing in restricted area, its excellent characteristics soon made it popular with sportsmen, newspapers, and business concerns. The Beaver was first foreign-built airplane to earn a contract from U. S. military services, having won liaison plane competition recently held at Wright Field. To be designated C-127.



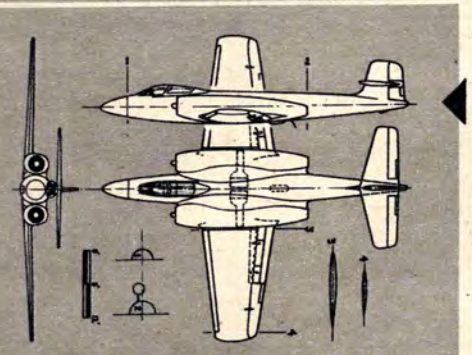
Chase XC-123A. First U. S. built jet transport, which this summer astonished air world with its exceptionally short take-off and landing characteristics, being able to get airborne in some 600 ft. and landing in same length. Prototype built from XG-20 troop-carrying glider. All Chase designs are slanted toward small-field operations—an aftermath of World War II cargo gliders which had to land behind enemy lines.



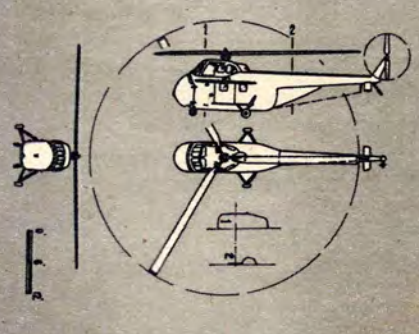
Blackburn & General Universal Freighter. British military transport and cargo aircraft. Loading is accomplished through rear part of cabin which is equipped with a ramp permitting vehicles to be driven in. Gross weight of the airplane is over 100,000 lbs. and its wingspan is 20 ft. longer than that of the USAF C-97 Stratofreighter; however, that gross weight is some 40,000 lbs. less. Powered by 1,950 hp Bristol Hercules engines.



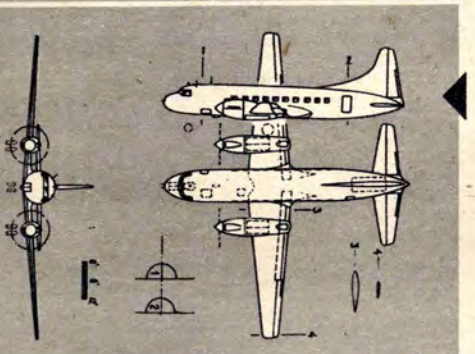
Anderson-Greenwood AG-14. This very interesting little plane is a rare example (we are sorry to say) of U. S. pusher lightplane. Pushers offer many advantages over tractors, such as better visibility, ease of entry into cabin, low nose level, and more cabin space. Designers of the plane are three Boeing engineers, Ben Anderson, Marvin Greenwood and Loomis Slaughter. Has 90 hp Continental engine, cruises at 110 mph.



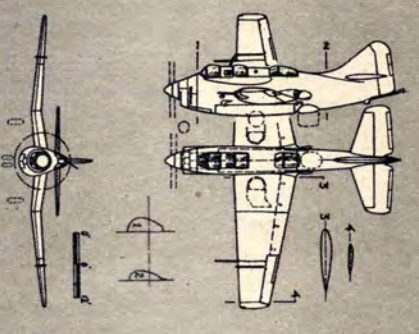
Avro Canada C.F.100 Canuck, all-weather twin-jet fighter. Prototype flew in Jan. 1950, powered by the 7,000 lb. thrust Rolls-Royce Avon engines. Subsequent models will be equipped with Canadian Orenda engines. At one time it was proposed to fly the C.F.100 from Canada to England, but an accident destroying plane and Canada's accelerated defense program prevented. Another C.F.100 now undergoing tests.



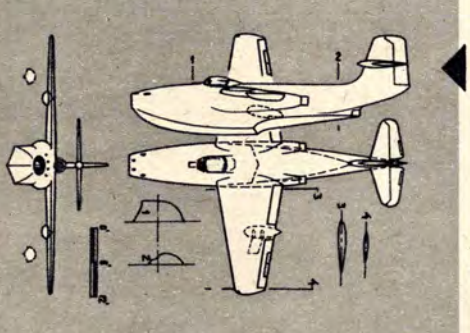
Sikorsky S-55. Twelve-seat utility helicopter which also carries USAF designation of H-19. First flew late in 1949 and since then has seen active service in Korea evacuating wounded directly from front lines and as a transport. Sikorsky helicopters, such as the H-5 (now no longer in production) evacuated as many as 1,700 wounded since being put in service in Korea. The S-55 is powered by a 600 hp P&W engine.



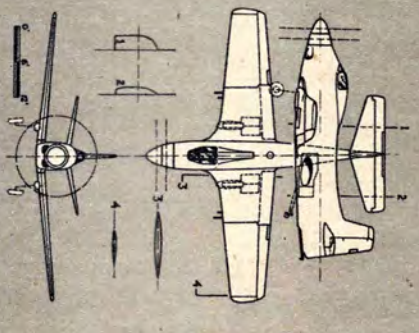
Convair Turboliner. Research transport powered by two Allison 501 turbo-prop engines of 2,750 hp each. Built by Consolidated Vultee Aircraft Corp. for Allison Division of General Motors to test this type of powerplant in a modern commercial airliner. Plane is a standard Convairliner as used on a number of airlines, modification being confined mostly to the engine-nacelle area, thus retaining all characteristics of original.



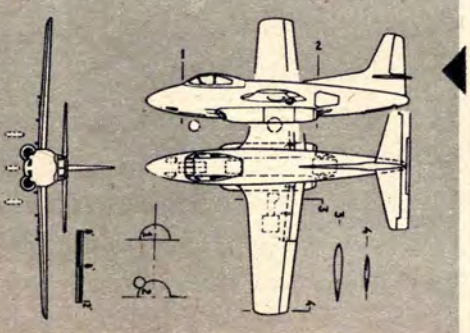
Fairey Gannet. British carrier-borne anti-submarine aircraft. First in world to be powered by a double turbo-prop engine driving two contrarotating propellers. Can be flown on one engine and prop, thus achieving fuel economy. Powerplant is a twin-unit Double Mamba of 3,670 hp. Pilot cockpit is well forward and above engine compartment. A radome is located in a retractable housing under rear fuselage.



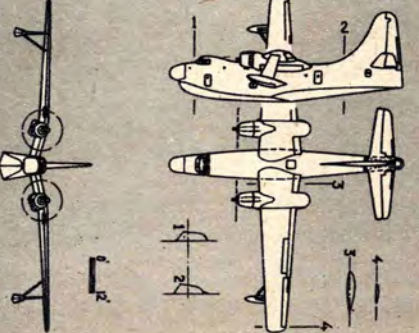
Saro SR/A1. First jet-propelled flying boat fighter in world, designed and built by British firm Saunders-Roe, Ltd. Has performance and maneuverability of a land-based fighter including aerobatics. Powered by two Metropolitan Vickers Beryl axial flow engines having a common air intake in bow. Engines mounted side-by-side with jet outlets on either side of hull. Armament: four 20-mm cannon in bow. Max. speed 500 mph+.



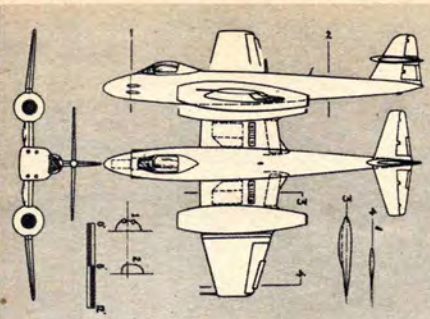
Douglas A2D Skyshark. Turbo-prop powered attack bomber eventually to supersede the AD Skyraider now in operation with Navy around Korea. Powerplant is the double Allison T-40 rated at 5,500 hp, driving two wide-bladed propellers. With both engines in operation, Skyshark can take off from carrier deck in 231 ft. as fighter, 325 ft. as bomber. Carries greater payload than any known similar jet bomber or fighter.



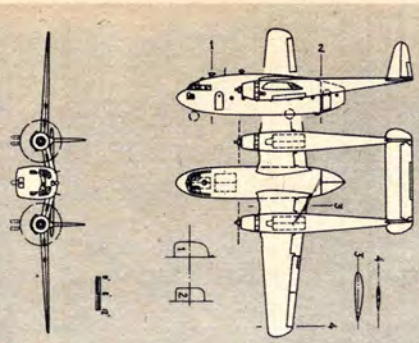
Douglas F3D Skynight. Navy's twin-jet carrier-based fighter designed for all-weather and night duty which permits carrier air operation 'round the clock under all weather conditions. Now undergoing carrier qualifications, will soon be in regular service. Plane carries extensive radar and electronic equipment. Crew: pilot and radar operator seated side by side. Emergency exit in underside of fuselage.



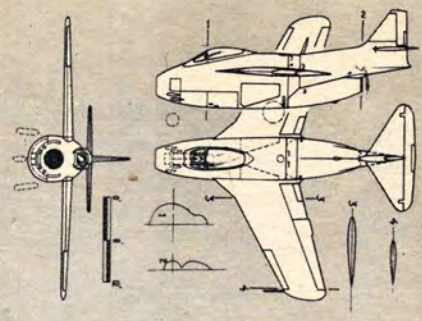
Martin P5M-1 Marlin. U. S. Navy's search and patrol flying boat, specially equipped for anti-submarine warfare. Has NACA developed hull with long afterbody which greatly improves water handling characteristics during taxiing, take-off and landing. Can carry bombs and depth charges. Wingspan is the same as that of the PBM Mariner which it resembles somewhat. Engines are 3,250 hp Wright Turbo-Cyclones.



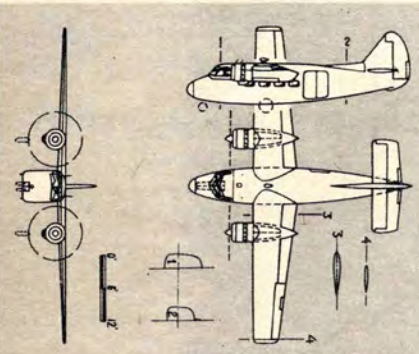
Gloster Meteor 8. RAF's fighter-bomber, descendant of the first allied jet fighter to see active service in World War II. Prototype of the Meteor flew in November 1943. Some 11 different models have been built. Mark 8 differs from others by having a longer nose and squared-off tail surface tips. Engines are two RR Derwent 5s of 3,500 lbs. thrust each.



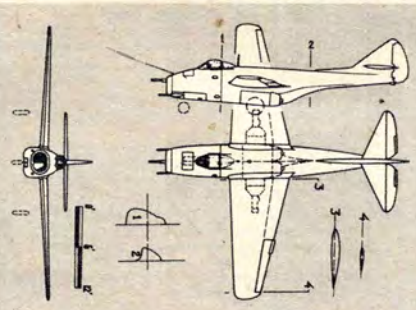
Fairchild C-119 Packet. USAF's standard troop and cargo plane. Distinguished itself in Korea by carrying every possible equipment including a bridge. Also used by Marines as R4Q-1. Powered by two 3,500 hp P&W R-4360's. Range, 3,500 mi.



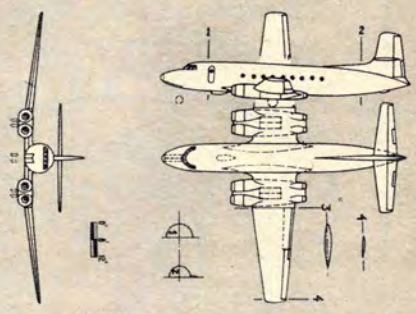
Saab J-29. Second jet fighter to be designed and built in Sweden. Now going into regular service with Swedish AF. The first was twin-boom J-21, a development of a similar piston-engine airplane. The J-29 has 5,000-lb. thrust Swedish-built DH Ghost.



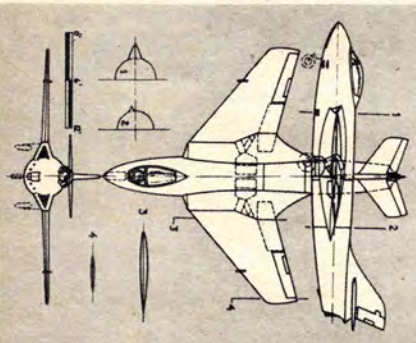
Percival Prince. Britain's twin-engine feeder liner, in use in many countries including U. S. A. Has accommodation for eight passengers or can be equipped for freight carrying. Two 520 hp Alvis Leonides engines.



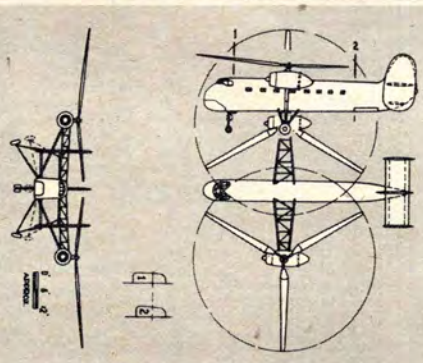
MiG-9. One of the first Russian jet fighters to go into service with the Red AF. Evidently was not too successful as it has not been heard from since it was displayed at the Soviet Aviation Day celebration in 1946. At best it was a compromise design to start the Russian jet ball rolling. Powered by two jet engines.



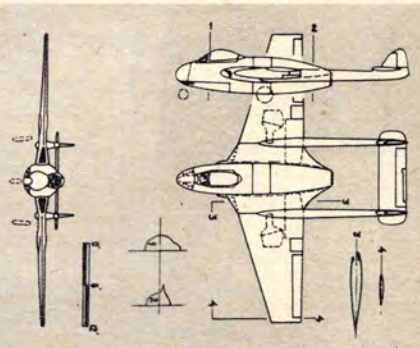
Avro Canada CF.102 Jetliner. First jet-powered air transport to be designed and built on the North American Continent. Has accommodation for 40 passengers in fully pressurized cabin. Was extensively demonstrated in U. S. Powered by 4 RR Derwents of 3,500 lbs. thrust each. Speed near 500 mph.



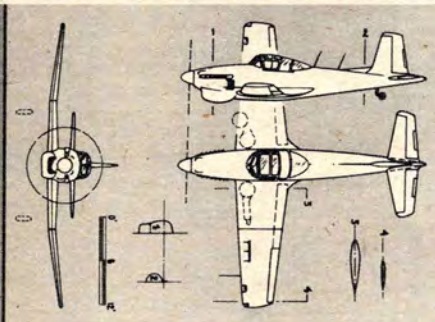
Hawker P.1081. One of the many experimental fighters built by British Hawker concern. Majority use same basic fuselage as the production Sea Hawk varying mostly in wing shapes and jet exhaust location. P.1081 has RR Tray of 6,500 lbs. thrust.



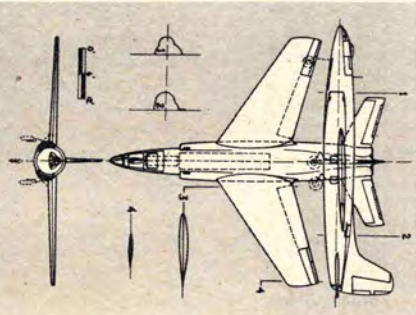
Omega. A Russian twin-engine helicopter design by Prof. Ivan Bratukhin. Information on it is very sketchy. Said to exist in three versions powered by 145 hp, 600 hp and 2,000 hp engines.



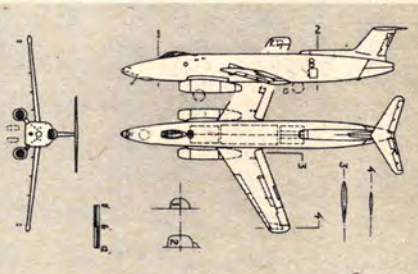
de Havilland Venom. A larger and more powerful version of RAF's famous D.H. Vampire. Has a longer and thinner wing, with aerodynamic fences. Can carry four external fuel tanks for increase of range, interception. 5,000-lb. thrust DH Ghost.



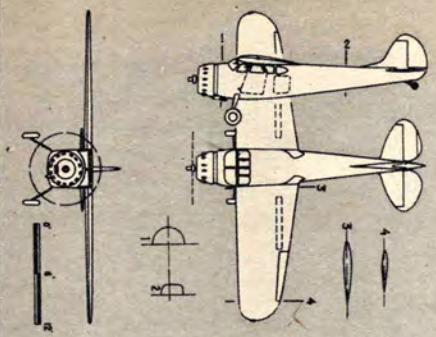
Boulton Paul Balliol. Two-place advanced trainer of the RAF and the Royal Navy. Is also used as glider tug. Student and instructor sit side-by-side. Has provision for machine guns and rockets. The standard trainer has 1,245 hp Rolls-Royce Merlin engine. The plane exists also in turbo-prop version.



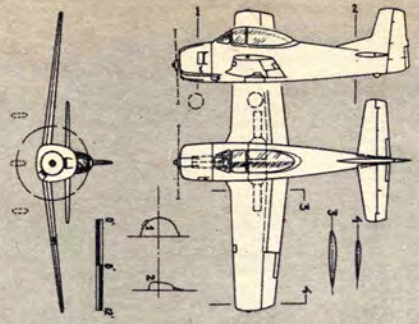
S.O.4000. French experimental twin-jet tactical bomber, three different versions of which were built before settling for the final product, only to have the experimental contact canceled by the government due to lack of funds. Has four-wheel double truck landing gear retracting into fuselage and a nose wheel. Engines two 5,000-lb. thrust RR Nenes.



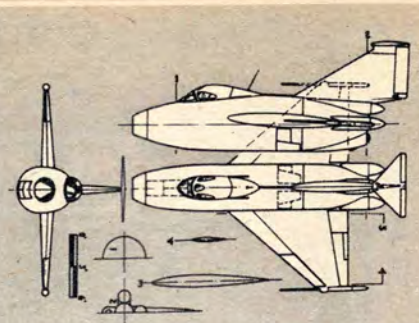
Martin XB-51. Ground support, tactical bomber. Was the first airplane to use tandem bicycle landing gear with outrigger at wing tips, initially tested on a B-26H Marauder. Plane has variable incidence wings, leading & trailing edge flaps for quicker take-off and slower landing. Wing sweep-back is 35 deg. Powered by three G-E J47 engines of 5,200 lbs. thrust each. Two are in forward nacelle the third is located in rear of the fuselage.



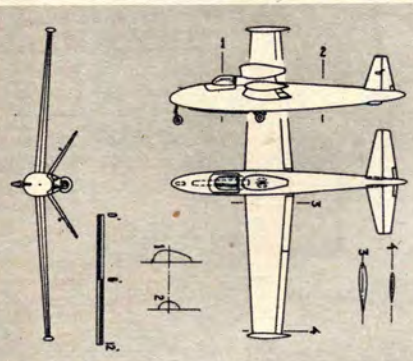
Cessna 195. Four-place personal plane powered by a 300 hp Jacobs engine. As LC-126 it is also used by the Air Force and National Guard for various duties such as liaison, light transport and rescue. A number are on order for Army Field Forces also.



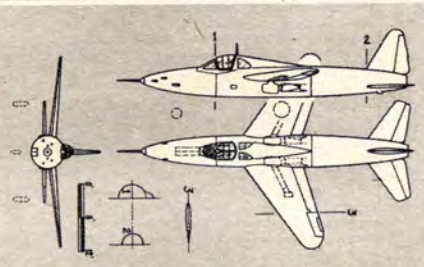
North American T-28. Air Force training plane used as transition trainer for jet pilots, as well as advanced work. Tricycle landing gear gives excellent visibility over the nose. Plane is 700 lbs. heavier than T-6; powered by an 800 hp Wright. Top speed 292 mph.



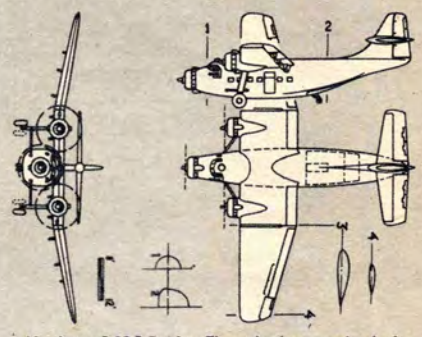
Fairey FD-1. Latest of the British series of research Delta wing craft. English have been doing very extensive investigation work on this shape of wing and this particular model is equipped with a small horizontal tail, possibly to investigate spin recovery characteristics of a Delta. The plane is powered by a RR Derwent engine of 4,000 lbs. thrust.



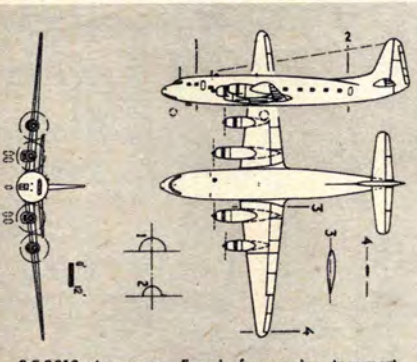
Fouga Cyclope. French call it a jet-powered lightplane though its shape is that of a glider. Powered by a Turbomeca Pimene engine of 220 lbs. thrust. 180 mph tops. Rudder pedals steer nosewheel.



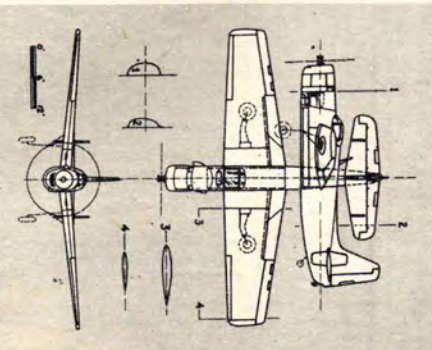
S.O.6021 Espadon (Swordfish). French experimental jet fighter. Earlier type, the 6020, had a ventral air intake for its Hispano-Suiza built Nene engine. On the 6021 it was relocated to each side of fuselage. Whether the airplane will go into service is still a moot question; it seems to be a habit of the French industry to produce a quantity of prototypes and then drop the design to go on to another, with possible exception of the Dassault Ouragan.



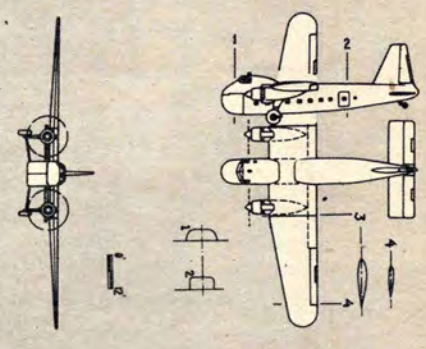
Northrop C-125 Raider. The only three-engined aircraft in the USA, Raider was designed for small field operation to act as cargo and rescue plane. It is basically an assault transport and is slated for Arctic service. Engines 1,200 hp Wrights. 200 mph tops.



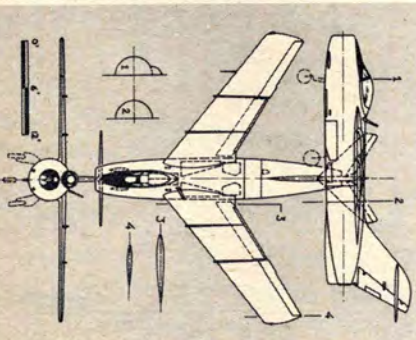
S.E.2010 Armagnac. French four-engine transport. Was designed and built with an eye for trans-Atlantic service, to carry 84 passengers. Not yet in production, though. Powered by R-4360 P&W engines rated at 3,500 hp each. Larger in size than Stratocruiser.



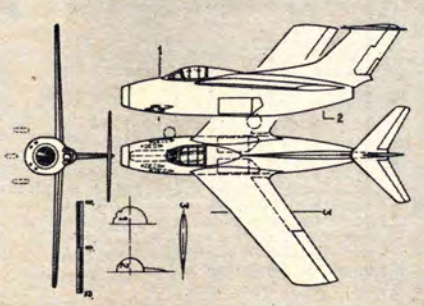
Grumman AF-2S Guardian. Sub killer teammate of the AF-2W hunter which is equipped with a large belly radome. Both are in service with the U. S. Navy on carriers. Powered by a 2,400 hp P&W, AF-2S can carry bombs, torpedos or depth charges.



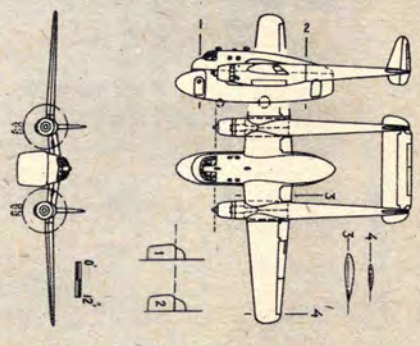
Bristol 170 freighter. A very successful British cargo plane widely used for short-haul operations such as transporting automobiles from England to France. Powered by two 3,200 hp Bristol Proteus engines.



LA-17. Very similar to the MiG-15, this Soviet fighter is somewhat larger and heavier and with higher location of the sharply swept wing. Two aerodynamic fences on each wing retard spanwise stall progression. Like the MiG-15, it is undoubtedly a copy of design by Germany's Kurt Tank.

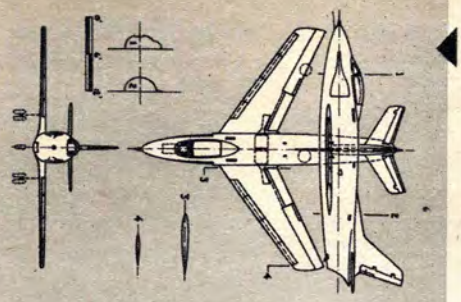


Pulqui II (Arrow). After World War II, the German designer Kurt Tank moved to Argentina where he continued his career at the Instituto Aerotechnico in Cordoba. The Pulqui II is the final fruit of his endeavor, a very clean and fast jet fighter with remarkable resemblance to the Russian MiG-15 and LA-17. It is powered by a 5,000-lb. thrust Nene.

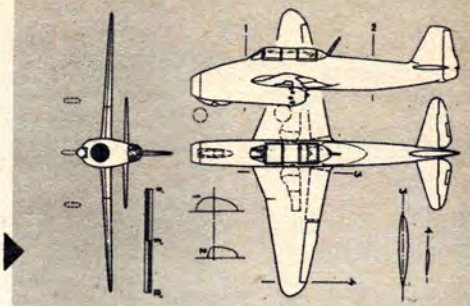


Fairchild XC-120 Packplane. Radical troop and cargo transport with detachable container which greatly accelerates loading and delivery of supplies and equipment. Pod has wheels and trailer hitch. Plane can fly sans pack. Four 3,500 hp engines.

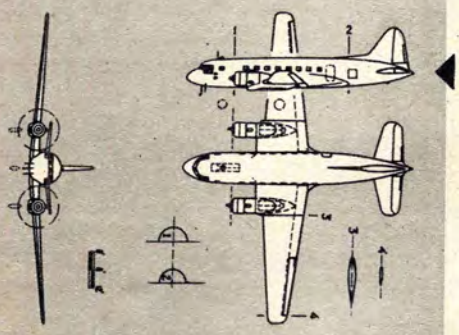
100 THREE VIEWS AND DATA



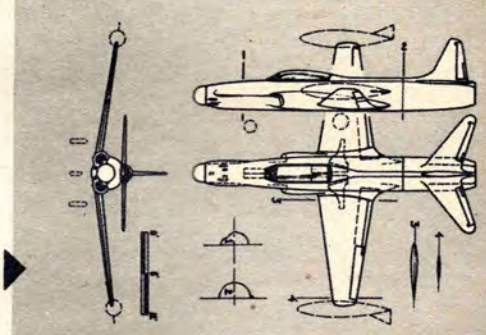
North American XF-93A. An experimental high-speed penetration fighter, a further development of the F-86 Sabre. Besides being larger than Sabre, it features gill-like air intakes and "Coke bottle" fuselage which reduces drag and improves lateral stability. The plane is designed to fly operationally at close to sonic speed. Because it's heavier than most jet fighters it has dual-wheel l.g. 6,250 lb. P&W J48 with afterburner.



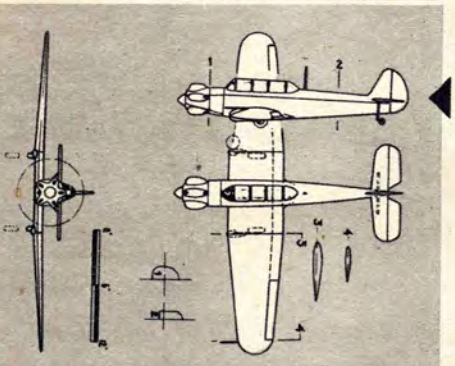
Yak-17. Russian two-place jet trainer, a development from the erstwhile Yak-15 jet fighter which is no longer a first-line aircraft. It is a habit with the Russians to convert their obsolete fighters into trainers, practice having started back in the Spanish war days when the I-16 Mosca was fitted out with a tandem cockpit. Later on piston-engined Yaks and similar planes were relegated to trainer conversion rather than the scrap heap.



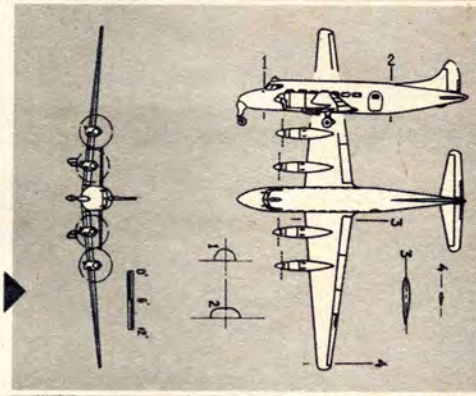
Il-12. Russian standard twin engine transport which is rapidly replacing Russian built and lend-leased DC-3s on Soviet airlines. Also used in Red satellite countries, especially Czechoslovakia. It is the only behind-the-Iron-Curtain airplane that was ever offered for sale to non-communist countries. The Il-12 is slightly larger than the DC-3 and is powered by two 1,850 hp engines. Accommodations 32; cruising speed 200 mph.



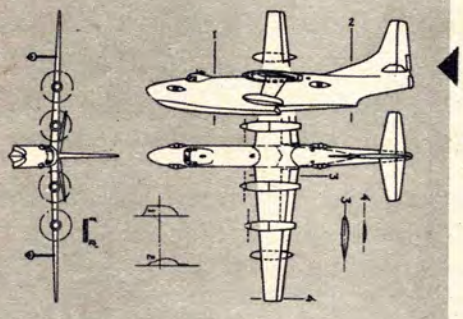
Lockheed F-94C. Two-place jet all-weather fighter. The "C" model is not yet in service with the USAF. It is a faster version of the F-94A and B both of which are operational, some on the Korean front. It differs from the older type by having a much thinner wing, swept-back horizontal tail and a more powerful engine, the Pratt & Whitney J-48 developing 6,250 lbs. of thrust equipped with an afterburner. Armament also differs.



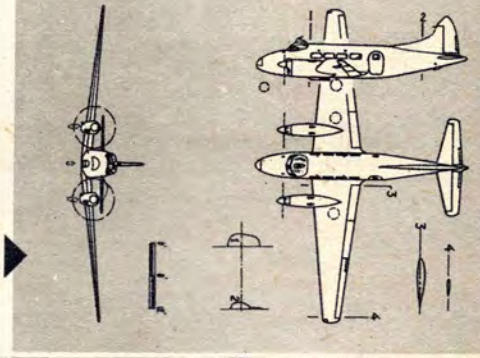
Yak-18. Russian two-place trainer. Replaces the old fixed-gear UT-2 which was standard with the Red AF for a number of years. Plane is also extensively used in Red satellite countries. Construction is conventional steel tubing and fabric fuselage, internal wing structure is metal, with aluminum sheathed leading edge; remainder is fabric covered. Wheels retract, mainly to help accustom student to service craft.



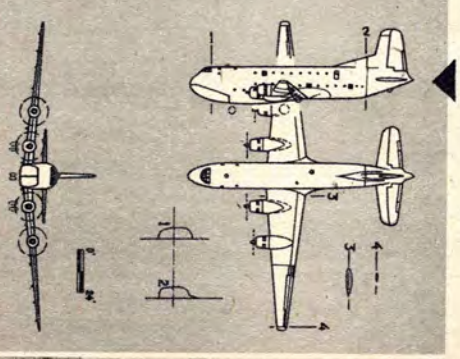
De Havilland Heron. British four-engine feeder liner capable of carrying 17 passengers. Exists in two versions, one with retractable and one with fixed landing gear. With its four 250 hp Gypsy engines, the Heron is quite economical to operate, an important factor in short-haul operations. Fully loaded the airplane weighs 12,500 lbs. Cruising speed 160 mph, with fixed gear; with retractable gear it cruises at 175 mph.



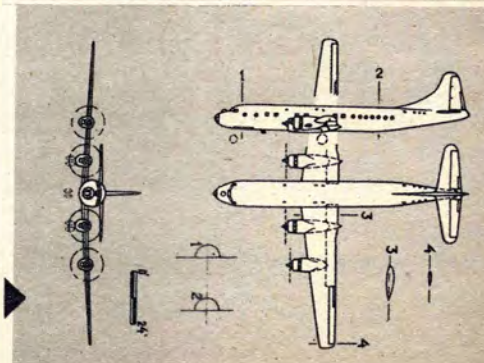
Convair XP5Y-1. First turbo-prop flying boat in world. Originally designed as a long-range patrol craft but ended up as a transport version designated R3Y-1. Two built. Prototype established turbo-prop endurance record, remaining aloft 8 hours and 6 minutes. Its four Allison T-40 engines develop a total of 22,000 hp. The plane is in 400 mph class. Convair has also under development at sonic-speed flying boat.



De Havilland Dove. British eight-passenger light twin-engine transport of excellent performance and utility, from which the Heron developed. There are close to 500 Doves flying in all climates and countries. Plane comes in a variety of models including ambulance and dust sprayer. Also used as navigational and radio trainer by RAF. As a military transport it is called Devon. Has two 340-mph Gypsy Queens.



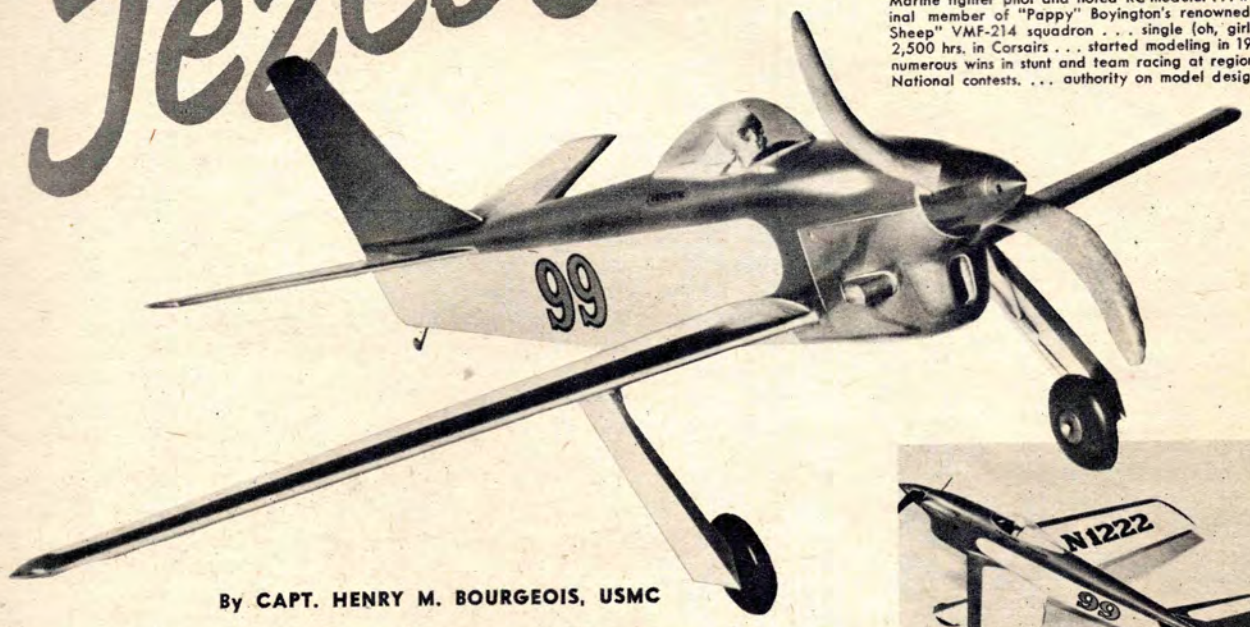
Douglas C-124 Globemaster. USAF's largest transport in operational service. Development of the C-74. Entire nose of the huge airplane is a clam shell door through which cargo and equipment are loaded. A hydraulic hoist loads heavy cargo. The Globemaster has made a number of crossings of both Atlantic and Pacific, acting as logistics plane for bombers and fighters in ferry. Can carry 200 fully armed troops.



Tu-70. Russian large four-engine transport, an obvious copy of our B-29, of which the Russians had four, keeping them after the bombers force-landed in Russian territory when returning to China from raids on Japan. Credit for reworking the design into a transport has been given to the designer A. N. Toupolev. Interesting to note is that the Russians have retained the bombardier nose on the Tu-70. A bomber version exists.

HANK'S "Jezebel"

Henry M. ("Hank") Bourgeois . . . 29 years old . . . U. S. Marine fighter pilot and noted RC modeler . . . was original member of "Pappy" Boyington's renowned "Black Sheep" VMF-214 squadron . . . single (oh, girls!) . . . 2,500 hrs. in Corsairs . . . started modeling in 1930 . . . numerous wins in stunt and team racing at regional and National contests. . . . authority on model design.



By CAPT. HENRY M. BOURGEOIS, USMC

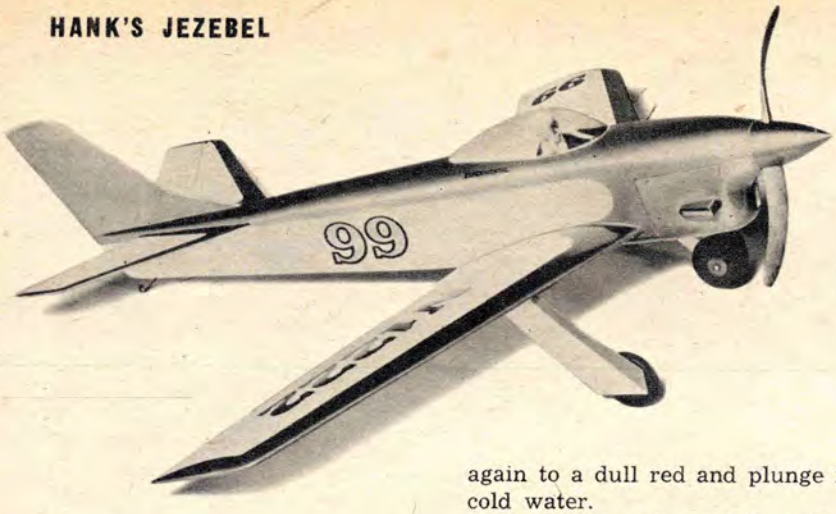
One of the world's leading team racing experts gives you an outstanding design for some fast circle burning

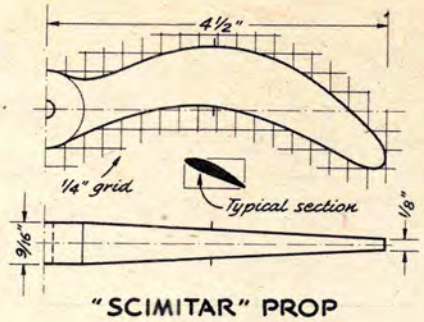
■ Team racer design is in a rut with all racers basically the same; only different-shaped wing and tail design allow distinction between models. Our new model had to be ultra modern, featuring light, strong construction and incorporating the fine points found desirable after years of competition racing. Your author, long a full-scale fighter pilot whose heart rides with the swept-wing jets, decided the new ship would have to be along those lines. *Jezebel* was born one bright morning when two rocketing F-86 Sabres screamed by in a vertical climb and left me sitting cold at 10,000 feet in an old-fashioned prop-driven fighter. Here was a natural design to base the team racer on, and flying has proven the performance of the model to be as superior to ordinary racers as the F-86 is to prop fighters.

Construction is conventional throughout. The wing should be completed first so that it can be installed intact on the fuselage. Butt-join two pieces of 3" wide 1/16" sheet balsa stock for the wing bottom and cut to the outline of the wing planform. Pin to flat surface and install the hardwood spars, false leading edge, and wing ribs. The entire control system and landing gear is installed before cementing the 1/16" sheet balsa top in place. The landing gear should be bound to the hardwood spars with thread and several coats of cement applied. Bevel the trailing edge of the sheet balsa bottom before cementing the top covering in place. Cut out the center section of the top sheet in order to reach the bellcrank assembly. Cement the leading edge and block wing tips in place and sand the wing to airfoil shape.

The fuselage sides are made from ⅛" medium-hard balsa. Using the airfoil template cut slots for the wing. The hardwood motor mounts are cemented to the fuselage sides, and when thoroughly dry the sides are assembled with the fuselage formers. Rough-cut to shape the top and bottom blocks. The wing is now installed on the fuselage.

The horizontal stabilizer is made from medium-hard ⅛" sheet balsa. To simplify construction and assembly, a movable control surface is used on only one side. This single control surface proved more than adequate for positive control at all speeds. In





"SCIMITAR" PROP

fact, the slight dihedral of the elevators tends to give a little *out* rudder on "up" control and helps hold the model out on the lines.

Cement the elevator hinges to both the stabilizer and the elevator with several coats. Install the pushrod linkage and check for smoothness before finally cementing the stabilizer to the fuselage. The elevator should have equal up and down movement of about a half inch. Before adding the bottom block install the tailskid with its loop for engaging the starting stooge. Use heavy wire here, preferably 3/32" music wire. Bending can be simplified by removing the temper beforehand. Simply heat the wire to a dull red color in a gas jet and cool slowly by gradually removing from the flame. After bending, to retemper, heat again to a dull red and plunge into cold water.

Mount the engine and then the gas tank. To increase fuel economy without sacrificing too much power, a Torpedo .29 needle-vale assembly was installed in place of the stock Dooling .29 carburetor. The fuel shut-off is a stock K&B Fuel Shutoff soldered to the needle-valve body. A short piece of rubber hose connects the tank and carburetor. The pushrod that trips the shut-off is soldered directly to the control pushrod and runs through a small brass tubing guide to the shut-off trip. The linkage should be adjusted to trip the shut-off on full down control.

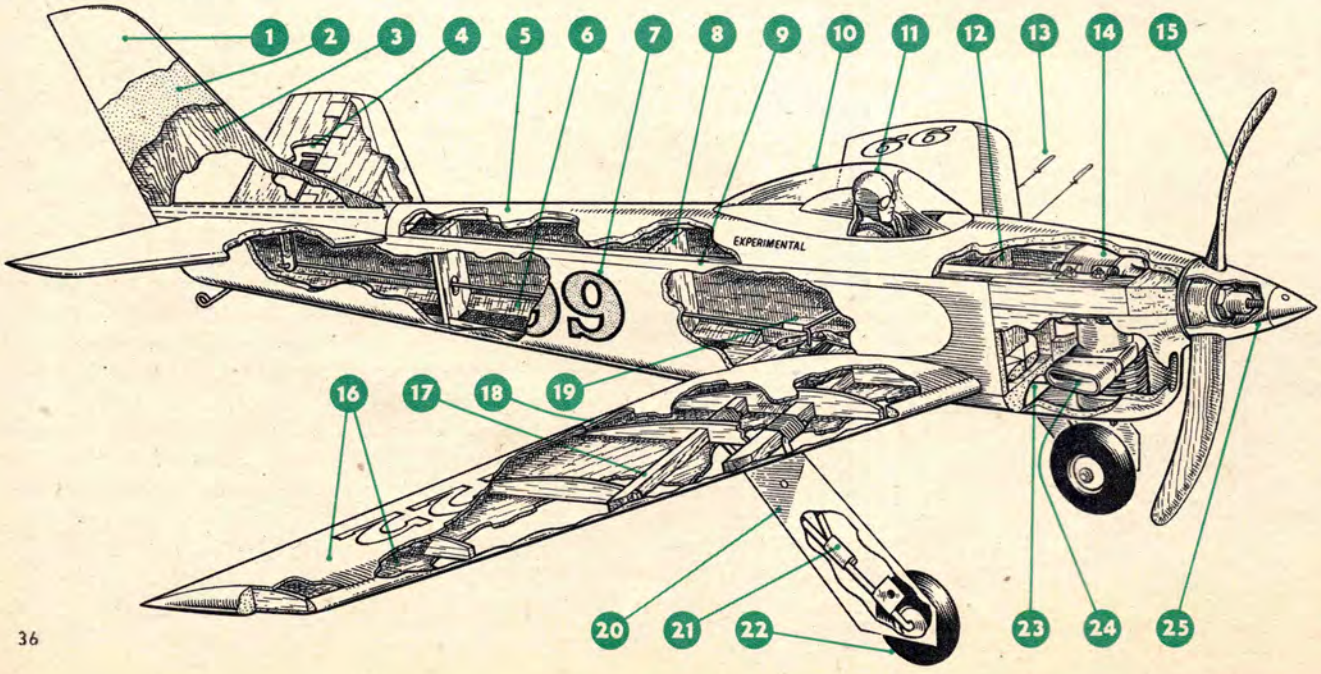
The 1/16" plywood rudder is next cemented to the fuselage. Before installing the top block, it's a good idea to paint the inside of the fuselage around the tank and wing root with Weldwood or a similar glue to add strength and fuel proof the wood on inside. Such touches pay.

Cut out the cockpit opening, install instrument panel and other cockpit details as desired. Don't forget the pilot required by Team Racing Rules. A "Hap the Hot Pilot" or "Ace the Race Pilot," miniature plastic pilots, painted in detail, available in most hobby shops, are scaled 1" to 1', just about right for this ship. The canopy is a plastic 5" bubble. Be sure and paint the inside of the cockpit before the top block is finally cemented to the fuselage.

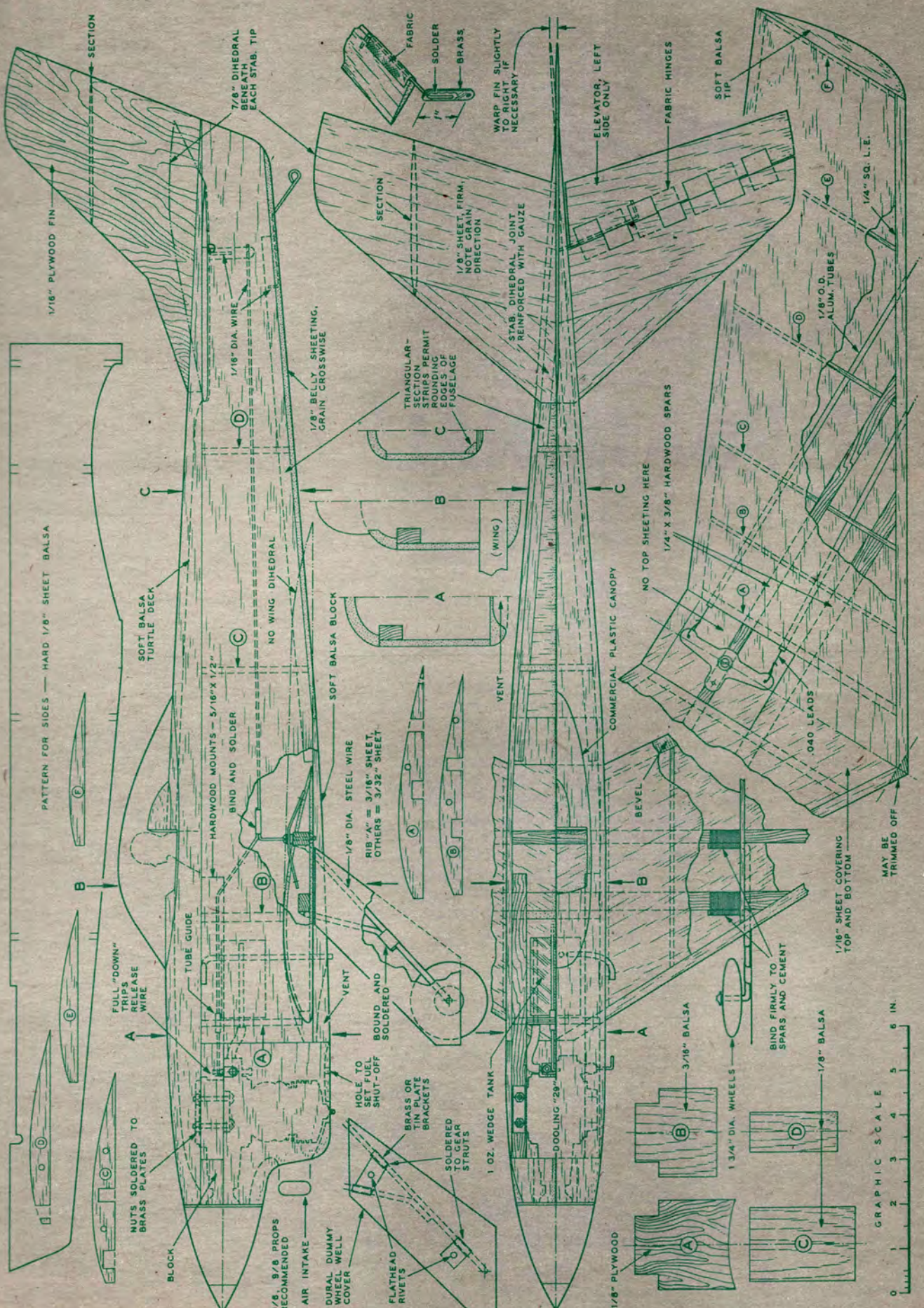
The cowling is assembled from block balsa as shown in the drawing. Fill in the inside corners with scrap blocks for a close baffle around the engine cylinder. Lightly cement the cowl to the fuselage and sand the fuselage to shape. Next remove the cowl and cut the openings for the exhaust port and cooling air intake.

A neat exhaust deflector can be made by (*Continued on page* 69)

1. Sprayed synthetic enamel finish. 2. Talc and dope filler coats. 3. Plywood fin. 4. Control, left elevator only. 5. Hollowed balsa turtledeck. 6. Triangular corner strip. 7. Decal decorations. 8. Balsa former. 9. Sheet balsa sides. 10. Commercial plastic canopy. 11. Dummy pilot. 12. Plywood former. 13. .040 leadout wires. 14. Dooling .29 engine. 15. "Scimitar" prop for acceleration. 16. Sheet balsa wing covering. 17. Hardwood spars. 18. Beveled trailing edges. 19. Pushrod with extension for fuel shut-off. 20. Dural gear cover. 21. Steel wire gear struts, soldered. 22. Sponge rubber wheels. 23. Cowl air outlet. 24. Exhaust extension (fixed to cowl). 25. Froom "Needlenose" spinner.



You can tell by her sleek lines that Jezebel can hold her own on any model race circle!

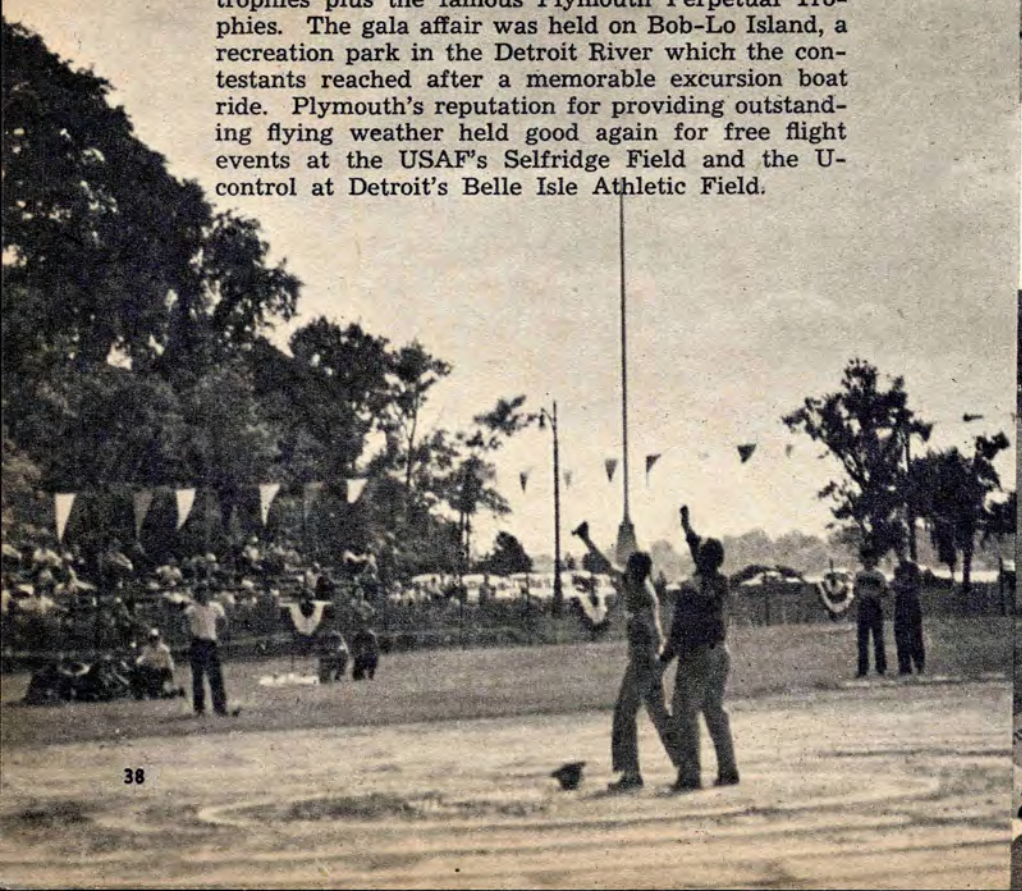


5th INTERNATIONALS

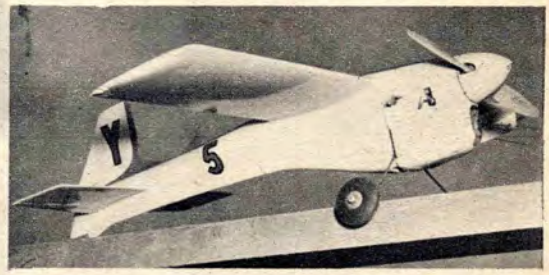
■ The best Plymouth International Model Plane Contest ever held, and one of the best run meets of all time, took place in Michigan late in August when 514 of America's best aeromodelers under 21 gathered to compete in the auto concern's 5th annual invitational tournament.

When the four-day affair was ended, 15-year-old Dick A. Modler of Dayton, Ohio, emerged as high-point champ of all age classes. Competition was divided up into 3 categories: Freshmen, not yet 12; Juniors, 12 to 16; and Seniors, 16 to 21 years of age.

Awards at the victory dinner included $4,725 in U.S. Savings Bonds, 93 first, second and third place trophies plus the famous Plymouth Perpetual Trophies. The gala affair was held on Bob-Lo Island, a recreation park in the Detroit River which the contestants reached after a memorable excursion boat ride. Plymouth's reputation for providing outstanding flying weather held good again for free flight events at the USAF's Selfridge Field and the U-control at Detroit's Belle Isle Athletic Field.



Modelers never had it so good. Each entrant was sponsored by local Plymouth dealer with trip and all expenses paid. Here bus picks up contestants each A.M. for transport to flying site. (Below): Slick team racer by Gordon Bone, Atlanta, Ga., was indicative of many fine T/R's.



Air Force interest in F/F events run off at Selfridge Field is shown by trio of officer pilots watching rubber job launch (below).

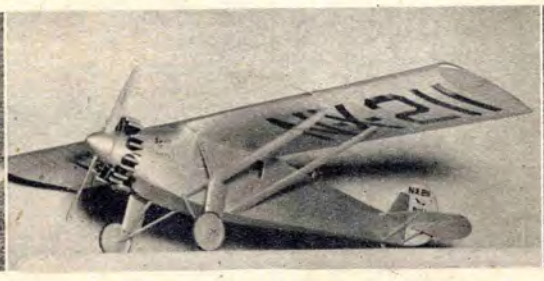
Line-up of team racers (below) suggests how colorful event was with no two models looking alike. Race dominated by Quest and Key kit jobs, both designed by Keith Storey who directed event. Keith reported Bob Mastrovitch, Fords, N. J., used Key to win 1st. Combat event (lt.)

Section of recreation building at Bob-Lo Island where 1,500 contestants, officials and Plymouth dealers dined and saw presentation of awards. Trophies displayed on huge rotating table. Stunt model (below) entered by Jerry Seracuse, 18, Denver. 42 sq. in. V-tail; 380 sq. in. wing; Fox .35 engine.

Contest officials gathered with MATS' Pfc. Tom Baker of Kings Mt., N. C. after Tommy broke FAI world record for model jets with (132 mph) flight by 4-pound model. AF "loaned" Tom. AMA's Russell Nichols, rear left; Plymouth contest manager, Warren E. Bartlett, kneeling left; George "Curley" Clingman, front, rt., U-control director, plus aides.

Air Trails' Perpetual Stunt trophy goes to 18-year-old George Aldrich, Edinburg, Tex., left. George racked up 329 points under stringent, fair judging. Al Lewis, AT Ed, makes presentation. Slick 400 sq. in. Fox .35 stunter (below) was entered by Harold "Red" Reinhardt, '50 winner of AT trophy.

Fifth in Jr. jet (121.99 mph) taken by Robert Heyde's enclosed Dyna-Jet job (below). Hackensack, N. J. Ship has done 150 mph.



David Lefebvre, Seattle, Wash., won top honors in U-control flying scale with AT's Spirit of St. Louis. Dave did complete stunt pattern; later creamed ship.

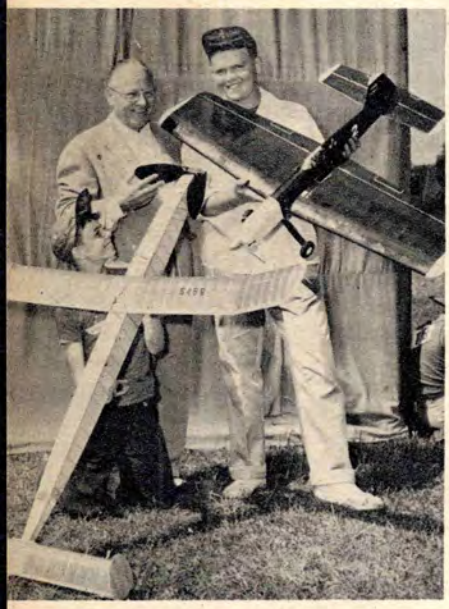
Contestant gets set in Navy Carrier event which was won by Valgene Hayworth, Sedalia, Mo. Lt. Cmdr. John Burton conducted.

Winners (back row, from lt., below): Dick Modler, high point & Jr. champ; Janyce M. Wood, 15, Pittsburgh, Cal., girls' champ; Herbert L. Davis, 17, Birmingham, Sr. champ & high jet man (144.29 mph). Chris Hanson, 10, Midland, Mich. (white shirt) and Fred W. Sage, III, 7, tied for Freshman honors.

Opening shot in 5th Internats was "fired" by Tom Grubb (above) from Portsmouth, O., with his Cub .049 Half-A. Tom, first man to make official flight, did 1:31.8. Dad watches. Debris basket for washed-out combat entries does not deter Art Huyghue, Tuckahoe, N. Y. from firing up and trying.

"Look, ma, my nightshirt's too small!" says Johnny Clemens, Dallas, Texas, who announced model events. Actually John has on over-size official's shirt. Plymouth presented each flyer with colorful T-shirt, helmet and pilot's type cap for meet plus "Selected Contestant Plaque" for attending.

Clay Boatman's fine Boeing F4B4 fighter in repose & take-off. Clay (Cleveland, O.) 5th in Sr. 225 pts.



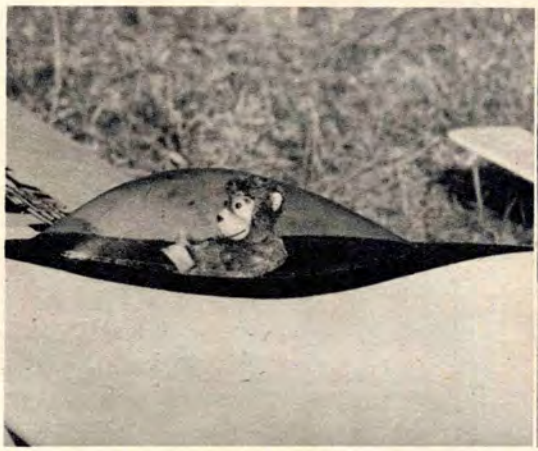
H. B. Heberling of Plymouth congrats stunt winner Aldrich and James C. Watson, Ft. Des Moines, 1st in jr. unlimited rubber, 679.2 sec.; 300 sq. in. wing. Keith (Korker) Storey, below, gets off quartette of team racers.

Sorry to say this excellent Douglas XA2D1 by Kenneth Schneider, Bellwood, Ill., didn't place in flying scale. Had beautiful finish, was a bit too heavy.

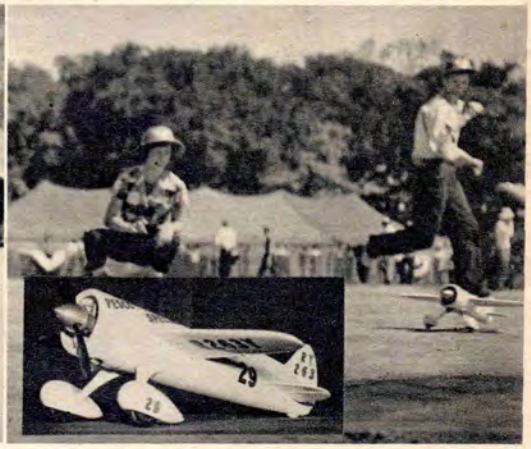
Another nice flying scale: a Camel by Don Schrello, 18, Pittsburgh, Pa. AT ships like Tipsy Jr., Heath Midwing, Stearman trainer, Pitts were in majority.

Off to a 10th place in Cl. A F/F goes Brian Hockin, Weston, Ont. R. Randall, Edmonton, 1st in team beauty, was only Canadian to win a top place.

Youthful contender gives old heave-ho to free flight. Shifting winds, gusts, difficulty with retrieving hampered some. Field open to big planes.

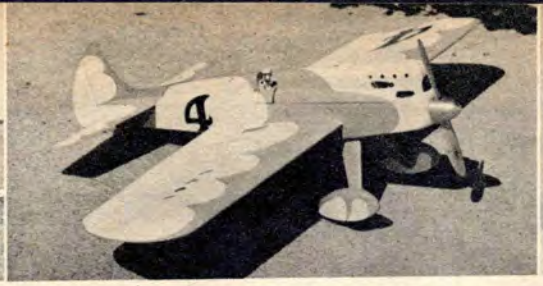


This guy was the calmest pilot in the contest. Moe, the stunting monkey, took top honors for making his competitors look like people. A real flying fool.



Pesco Special was entered by Sam Snyder and Patsy Blauer, Hutchinson, Kan., flying as team. Tiny job tried but didn't place, lost pant on landing.

Joe Kubina, Detroit, cranks up in unlimited rubber. He ended up with 5th in senior, 661.6 sec. Top rubber time by Carl Redlin, Detroit, 889 sec.



Clay Boatman (see F4B4 opposite) flew this Ike-like Fox 35 powered 365 sq. in. yellow and white stunter to an 8th in A-B-C-D stunt in senior division.

Fleet trainer from AT took 10th in sr. scale for F. Roberts, Bismarck, N. D. Scalers surprised judges with neatness, flyability.

You name it! Deep, inverted-V fuselage rubber ship by Glen Ballou, Southington, Conn. Three foot fuse., 8¼" deep, 3 in. wide; 200 sq. in. wing.

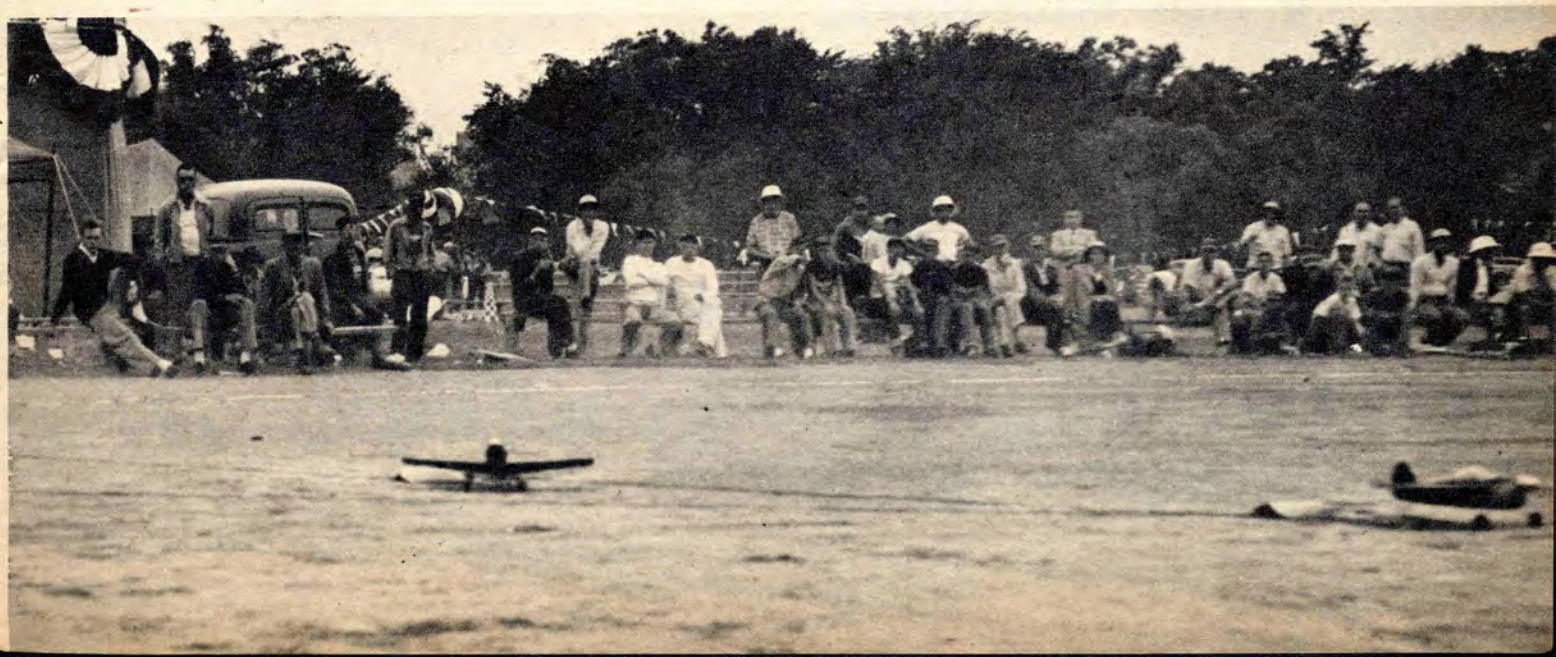
Nice take-off shot by one of the big crew of Plymouth photogs. Designs for most part were kit affairs; not much originality, but very clean models.

This stunt model got top appearance points. F-51 fuse, modified wing. Instrument panel, radio. Stan Kwit, Chicago.

This P-40 was largest scale model flown at meet. Plymouth permitted any type scale model entered with result that scale event was bigger 'n ever.

Dave Lefebvre, lt., scale champ, examines Convair R/C seaplane with K. Lightfoot, St. Paul, Minn., Ray Fry, Stow, O. XP5Y-1 model a Navy exhibit.

Meet's last flight. Unidentified contestant taking that one last fling before free flight events were closed down at Selfridge AFB.



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Winner of International Nordic "A/2" contest: Oskar Czepa, Austria, with "bird wing" entry.

F.A.I. MEET

By D. A. BROCKMAN

■ In the F.A.I. International calendar one main event in each model category is recognized as having world championship status. For rubber models this is the Wakefield, and for gliders the Swedish Cup, limited to models having a total surface area of between 495 and 525 sq. in. and weighing 14½ ounces, minimum. This specification is known as A-2 and also popularly as the "Nordic" Class, owing to its Scandinavian origin.

The 1951 A-2 International Championship was held at Bled, Yugoslavia, on August 24th, eleven European nations being resented by teams of four. Thei was to have been a U. S. entry, that of Dick Everett, who forwarded his model to be flown proxy. Unfortunately the American A-2 did not arrive in time and was still undelivered at the conclusion of the meeting.

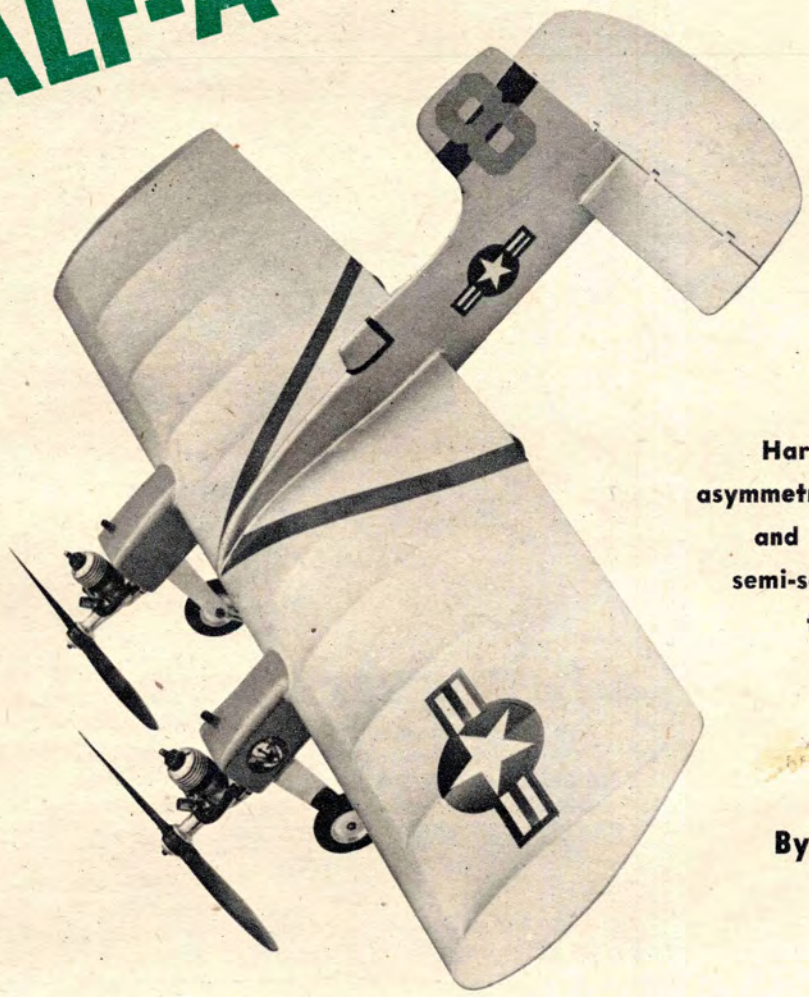
The true Continental Nordic A-2 glider generally has a wing area of about 400 sq. in. and a 125 sq. in. stabilizer. The fuselage needs only a minimum cross section of 5.26 sq. in. to comply with the rules, and so simple, slim slabsided types are the general rule. Most of the Continental designers favor parallel chord wings of an aspect ratio of around 10:1 with only the extreme tip portions sharply upswept for dihedral. Airfoil sections are thin and generally heavily cambered, such as the Swedish Isaacson series. Hardwood construction is as common as balsa, particularly for spars.

Flight times are limited to a maximum of five minutes each under F.A.I. rules, and Oskar Czepa of Austria, in winning the 1951 contest, achieved nearly a perfect score. Not only that, the winning model defied convention in having an extremely thin stick fuselage made from a box of 0.6-mm plywood, a large wing of some 460 sq. in. area and a very small tailplane to come within the rules. The weight of the very long fueslage necessary to give the required tail moment was balanced by extending the front of the fuselage some three feet beyond the leading edge of the wing, so that only very little ballast weight was needed. The required fuselage cross section was built up by means of a tissue-covered nacelle around the center of the tail unit.

The wing was of most interesting design, for it used a "bird" airfoil section developed by the Austrians after lengthy study into the problems of (*Continued on page* 63)

Outstanding models at meet (from top) were pod and boom by Breznikar of Yugoslavia, placed 13th; Kai Hansen with typical Danish entry; Jacques Morisset, France, won free flight event with 2.5 cc. diesel; second place A/2 winner Ljube Petkovski, Yugoslavia, with model featuring fin strakes; typical Yugoslav design according to author Brockman who says the extended dorsal fin is common; Arden .099 powered this Belgian shoulder wing gas model. Latter is typical of European trend—underpowered by U. S. standards.

HAROLD'S HALF-A TWIN



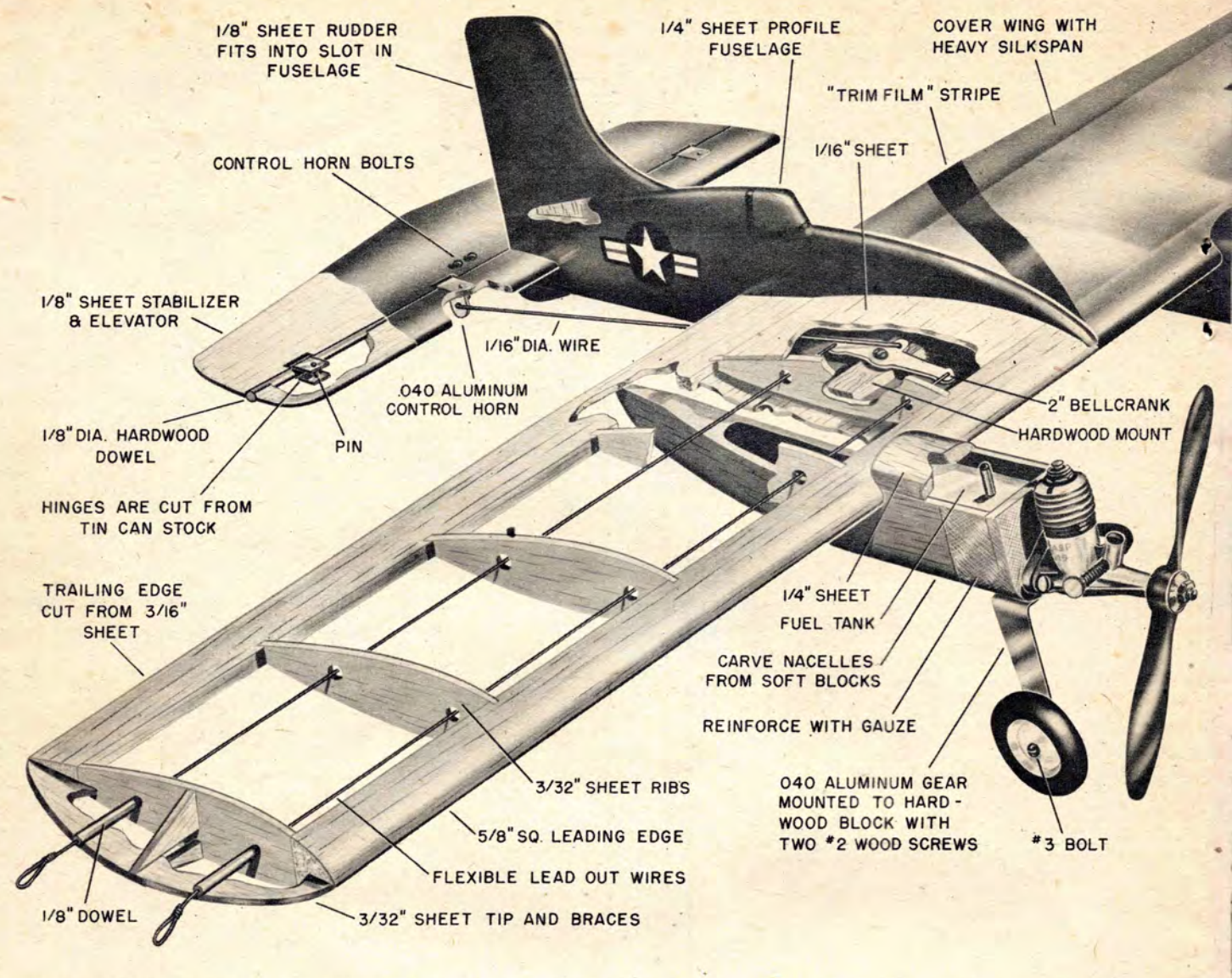
Harold the Hot Pilot applies asymmetrical stability to the XF5F and comes up with a 2-engine semi-scale stunter that's a cinch to build and a dream to fly

By HAROLD F. deBOLT

HdeB, 32, noted model aircraft design-engineer . . . started modeling in 1929 at YMCA . . . served 2½ yrs. with Navy air force . . . member of Buffalo, NY, Miniature Aircraft Engineers . . . was NY State free flight champion in '40 & '41. Married, son Ronald 5½; daughter Patricia 4½.

■ It can be said that at one time or another almost every modeler has had the urge to build and fly a twin engine job—for "twins" are really different, fun to operate and draw attention the way honey draws flies. For most this desire has never been fulfilled, due to several good reasons; one main one: twin engine operation has been considered expensive, complicated by gadgets and usually involved a complex model if it were to be attractive. Nevertheless, the desire for one is still there.

The Half-A Twin is believed to be the model that will allow even the most skeptical die-hard to realize said desire. With this design, we have tried to incorporate the answer to all the objectionable problems which have been present. The answer to the expense problem comes with the use of Half-A engines. Most of us have one or two on hand anyhow, and with the *Twin* they do not necessarily have to be of the same make or power, allowing even more leeway in powering it. The use of Half-A engines also solves the operation problem as these small jobs are noted for their easy starting and consistent running ability in the air.



In flying the model, it has been noted that you can hardly tell the difference between the effort required to operate the two engines and that required for single engine jobs. Then, too, the performance in the air has been really remarkable; no instance can be remembered when one engine failed without reason. It almost seems that if one engine is operating well it will pull the other through if you should happen to have a false setting!

To provide a bit of attractiveness while maintaining the simplest possible structure so as to keep the construction time down, we incorporated some of the lines of a really sensational airplane of a few years back. Remember the Grumman Skyrocket, the Navy's XF5F fighter? We obtained the simple structure by just following the outline where possible and even changing the looks in one place by doing away with the twin rudders that graced the original. As a result, the profile fuselage, simple pod nacelles and constant chord wing make for one of those satisfying "single evening" construction jobs.

The best way to describe the flying ability is to say it is a "sport-stunt" model in performance. That is, if you are a beginner here is a model as easy to handle as any trainer you have ever flown. At the same time, it will perform all of the basic maneuvers with comparative ease. The control response is excellent, and if you are not too particular about how tight you do your loops, eights, etc., you will find it does a mighty fine job. One of the secrets of its performance is the asymmetrical stability which does away with all wing weights, offsets, etc., which in turn allows for a really lightweight low-drag job of extremely high performance.

When it comes to building, we believe that you will find all the information necessary on the drawings, except perhaps for a few hints as to method. To start, it is best to get the big job out of the way, in this case the wing. Commence by notching the leading and trailing edges and lining them up with the ribs on your bench. After assembly, the bottom sheet covering is added; note that it extends to the nacelles on the lower side only. The controls are installed complete before adding the sheet to the top side.

Next step is to cut out the fuselage profile from quarter-inch sheet and, after shaping, installing it on the wing. The tail can then be added as shown and the controls hooked up to the elevator. They should work very freely.

The nacelles are made from block balsa and require but little carving. First, cut them to rough profile shape and fit them to the wing, making sure that the thrust line is neutral. Next, hollow them out at the front only so that the Darwin No. 2 style "B" fuel tanks will slide tightly in place. Be certain that your tank is mounted at the proper height to line up with the needle valve of the engine. Cement is used to hold

the tank firmly in its final location.

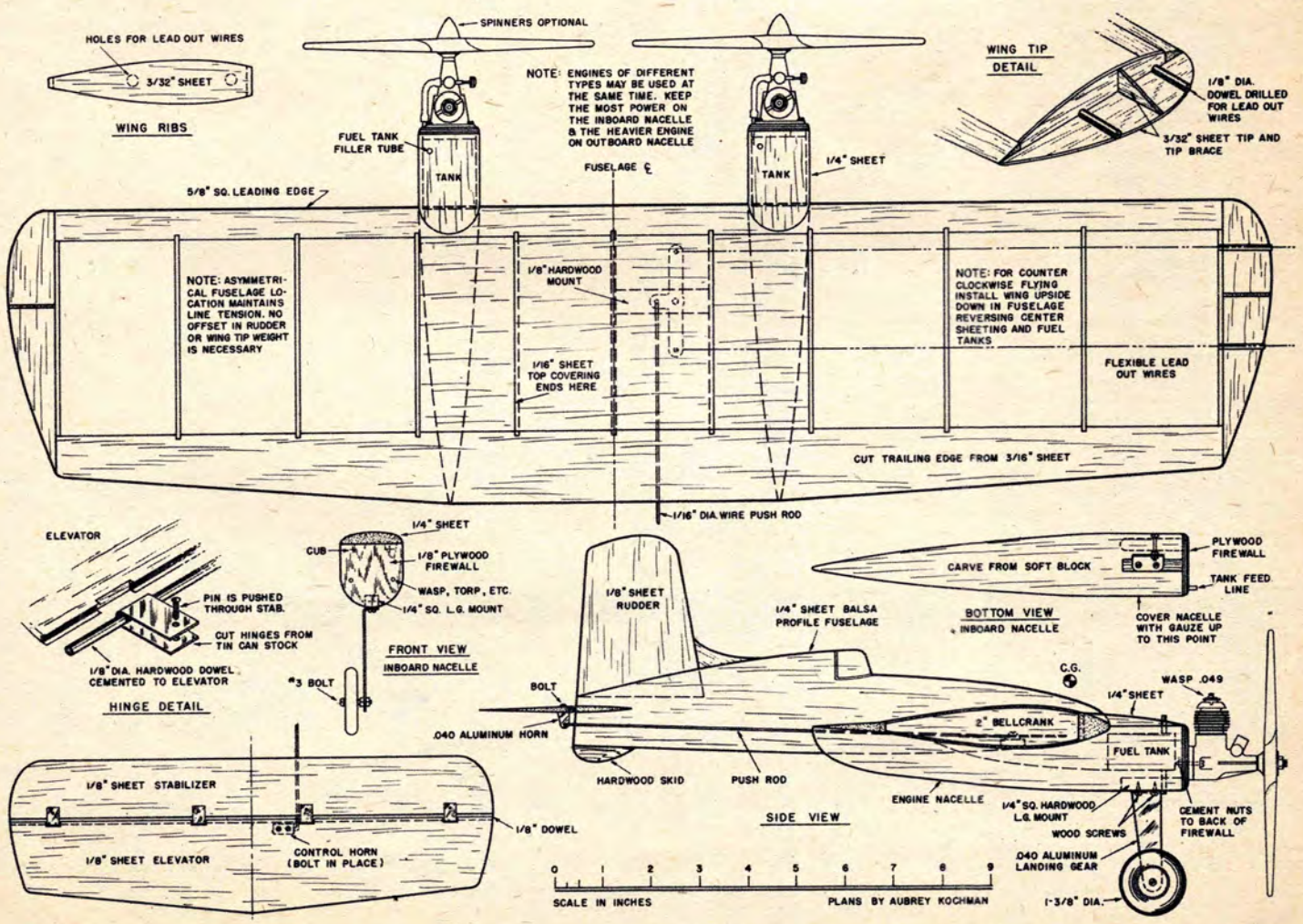
The plywood firewalls can now be shaped and cemented to the front of the nacelles; once again check the thrust line. To finish the nacelles, the outside contour is carved using the shaped firewall as a guide and removing every bit of excess balsa to make them as light as possible. Once completed they may be cemented to the wing and the quarter-inch fairing block added to the open spot over the fuel tank.

The landing gear is made from 24 ST aluminum alloy, .040" in thickness. This is standard aircraft construction material and should be easily obtained. In bending the angle in it use at least a ⅛" radius for the bend and to smooth the edges before starting. This will prevent this really tough material from cracking. It is fastened to the nacelles with #2 wood screws which are screwed into a small piece of hardwood imbedded into the balsa nacelle as shown. The axles for the wheels are #3 bolts which are held in place with two nuts.

In finishing the model, the wing is covered with *heavy* Silkspan; the additional weight will not hurt the performance and the strength gained is considerable. It is important that the firewalls should be gauze reinforced as shown; this prevents the plywood from breaking away from the balsa in a rough landing and the like. Use cement as the adhesive. After sanding the entire model with fine paper, the finish can be applied. I used Aero Gloss fuel proof products all the way through. First apply a coat of thinned-out cement to the whole structure to seal the pores. When dry, sand well and add two coats of clear dope and sand lightly. Next a coat of balsa filler undercoat is brushed on and it too is sanded well after drying.

The model should then he ready for the final color. The original was painted according to the Navy color scheme used on the Skyrocket, the entire model being silver with navy blue nacelles and red squadron markings. Decal insignias are added to give the finishing touch and that realistic appearance.

Flying the model is the same as for any (*Continued on page* 55)

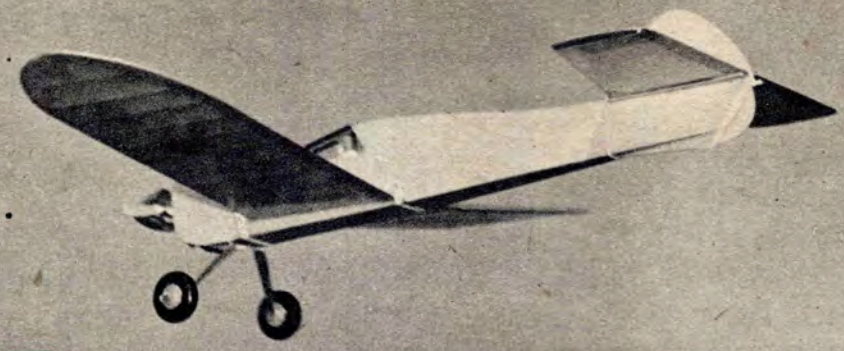


Looks like a team racer . . .

Flies like a homesick angel . . .

Building it is easy . . .

In short, gentlemen, the ship's a . . .



KORKER

By KEN WILLARD & KEITH STOREY

Quite a pair! Ken (left) is 39, a contract administrator for Lockheed Aircraft Serv. in Burbank, Cal. Was 4 yrs. with Air Force; during N. Africa invasion flew with RAF in Hudsons out of Gibraltar making sea measurements to predict landing conditions for assault boats, hit 'em on the nose. Married, wife's name is Kathleen. Started flying in '27, holds commercial license, began modeling in '25. Keith is product designer and supervisor with Duro-Matic (McCoy engines), 25, served two years with AF. One of the originators of team racing and the F.A.S.T. (first all-speed team) club. Designed "Key" and "Quest" team racers, has officiated at past two Nats and Plymouth meets. Started modeling at 8; has held half-dozen national speed marks. Lives in Pasadena, California.

■ The *Korker* has the sleek and distinctive lines of the early sport and racing type aircraft. She has a fast climbing turn and a graceful glide. Take-offs are sure, quick, and clean. On calm days you will be able to land the model very near the launching point.

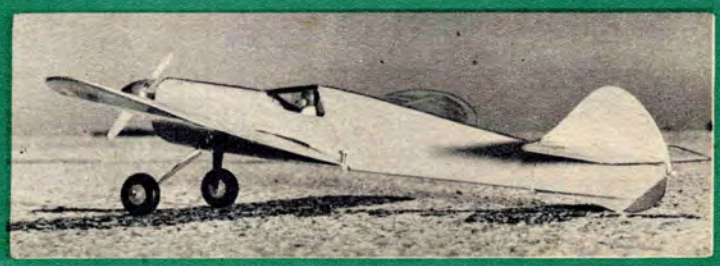
There are no tricky adjustments. You can make a left or tight turn under power with no fear of a spin-in. Glide may also be in either direction completely independent of power settings.

The original structure was flown several hundred times with no more damage than a few holes in the wing fabric, and that mostly due to our big thumbs. The features include a balsa box fuselage, keyed bulkheads and firewall, and knock-off wing and tail units that really work.

Standard construction procedures are used. The wing and tail sections are built up over a full-size sketch or plan. Fuselage sides are single-piece balsa sheets held in line by keyed bulkheads. They curve in slightly at the top, giving additional strength. Top and bottom of the fuselage are sheet balsa.

The *Korker* is not limited to one engine or a single displacement. Early tests were made with the small .020 engines. As flying results proved successful, the sizes were increased to .035 and then .049.

Pilot and instrument panel are touches of realism that complete picture. In air ship flies like big plane.



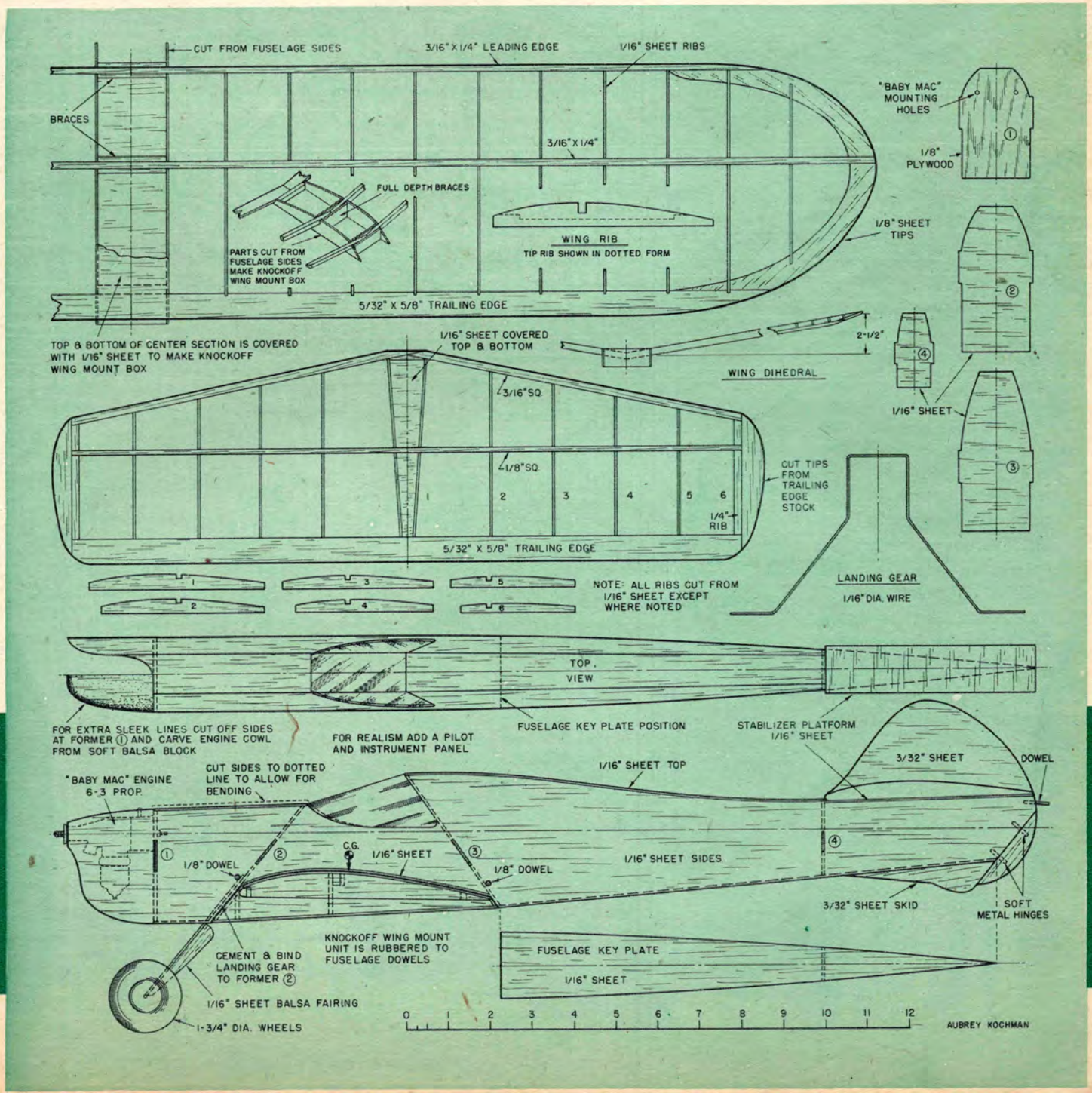
Modeling is fun—especially when you make and fly successfully something different like this low wing.

All the engines used gave similar flights, with the larger ones showing their power through steeper and faster climb. During most of our test flights we held the engine run to about 15 to 20 seconds with a small tank and a limited fuel supply. Length of run for you will depend on the size of the flying field and the weather conditions.

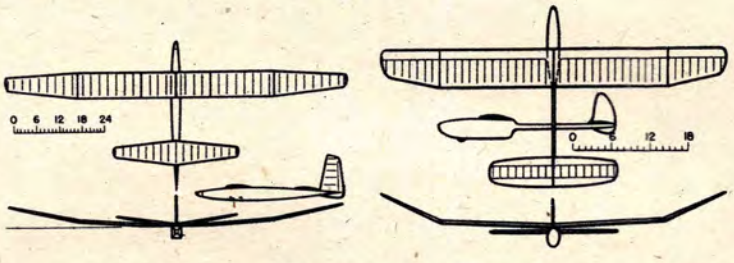
The *Korker* normally has a flat slow glide. Add weight to the nose or tail as needed until you are satisfied. A sharp tendency to turn should be checked right away. It will probably turn out to be a slight warp in the wing. Holding the wing or tail over an electric plate or stove is an effective method of correcting a warp.

The engine thrust may be set to suit yourself. A straight setting of zero degrees left or right and up or down will prove successful. With this zero setting, the model will tend to turn to the left, and there may be a slight dip in the climb. If you want a perfect climbing turn in both directions, add about two degrees of right but no down thrust. Now *Korker* will go either way and practically have a contest climb to the right.

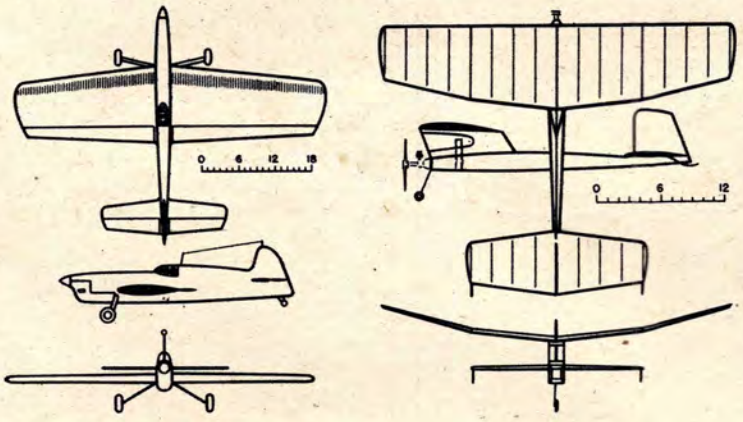
One of the greatest thrills in modeling is watching your own ship take off by itself. *Korker* may fall into either a right or left bank depending on the wind, but don't worry; it picks up speed in a hurry, becomes airborne, and establishes its climb without hesitation. When hand launching, a straight or slightly left bank will automatically fall into a smooth left climb. A hard fast launch to the right will be necessary if you want a contest right climb. The rudder trim tab will be (*Continued on page* 72)



Air-Model Design at the *Nationals*



Short coupled, sheet-covered fuselage job was Frank Ehling's 22 oz. towliner (left). Flexible wing to absorb launching and landing shocks. Tow rudder used; dihedraled stab clears ground on landings. Flat bottom airfoil; ribs 1" apart. Dick Everett's huge pod-boom towed, glided superbly; 51 oz. Gott. 602 on wing thinned to 8% for stab. Spruce boom, balsa pod, sheet rudder.



George Aldrich's stunt model looked sleek enough to be a team racer, flew almost as fast. All surfaces built up. Additional moment arm of 1 or 2" suggested for extra smoothness. Frank Ehling's "Payoff" PAA-Loader had low aspect ratio wing, stab. Thin wing section & single wheel made model fast. Straight under power, glides tight left. Dips once after power cut.

Proving ground for new modelplane designs, the annual National Meet always brings out the best ships by America's leading designers. Here's a collection of outstanding entries gathered by AT's air-model design team. You'll be hearing more about these planes in '52.

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Those of you who have built "IT" kits in the past will really take to the "Simplex" kits too, as they carry the ideal of realism and flight engineering into the realm of prefabrication. Simplex models are much bigger than the spans (15 to 20") imply, as their fuselages are huge compared to the spans.

These 3 sleek jets are among Uncle Sam's most talked about, most promising fighting jets, and you'll see them in the headlines, and in the newsreels every day. Ask your local hobby dealer right away, for the biggest dollar's worth of model yet to be seen! — He'll show you the "Simplex" kits!

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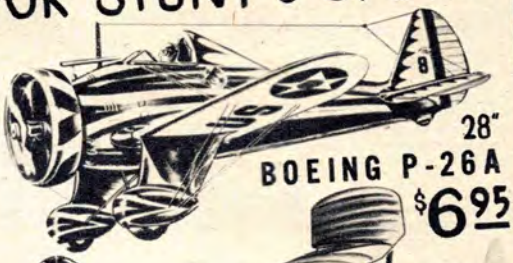

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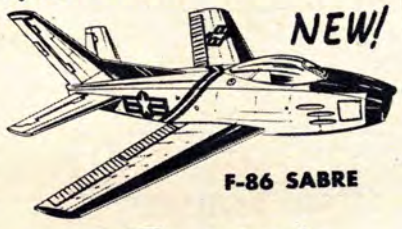
Announcing Another Three New "Quicky" Sets

We have already been asked for more designs, so here they are — the snappy Luscombe Sedan, the famous F-86 Sabre jet fighter, and the perky Bonanza. We think you will like them even more than you liked the first sets. The Sabre is a whiz to assemble, being constructed of a little more than a dozen parts, and it makes long, sweeping, stable glides when hand launched, looking for all the world like a real Sabre. The Sedan and Bonanza are rubber powered, (all Quicky sets except jets now include rubber). All you need is a batch of Cleveland "Quicky" sets (get them all — you won't regret it) and a tube of cement.

NEW!



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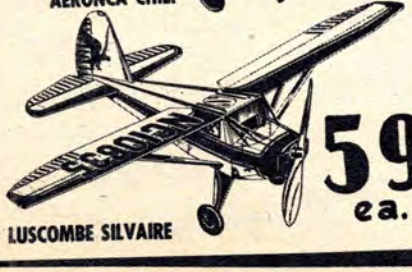

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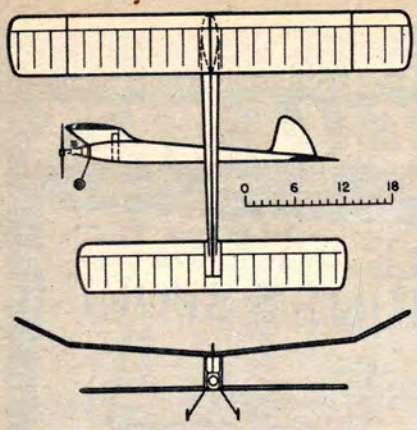
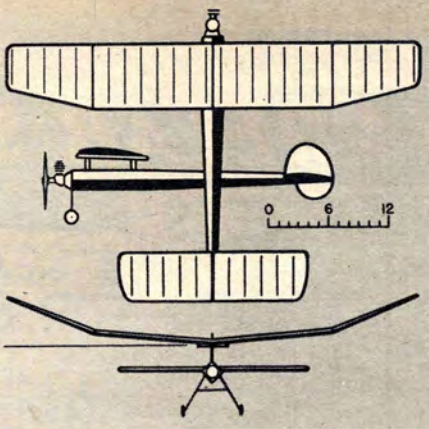


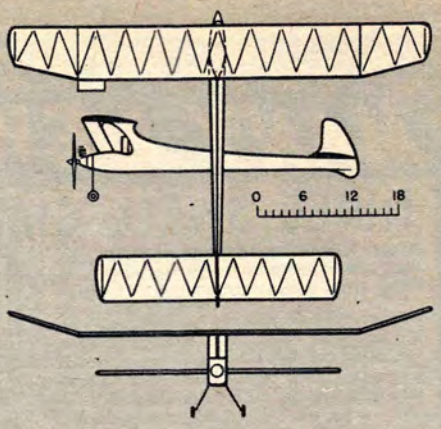
Paul Gilliam's "Payday" had clever cabin layout: large stab permitted dummy positioning where fuselage could be streamlined to advantage. Two wheels, smooth take-off.

Chicago's Ed Mates flew this diamond fuselage with Airco wing and stab combo. High angle of frontal float results in fast take-off. Model established brand-new AMA record.



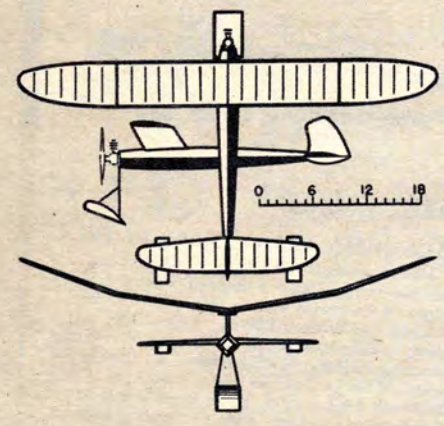
Interesting Half-A non-pylon model by Sal Taibi, ex-Brooklyn Skyscraper. Diamond fuselage. Stabilizer tilted for turn. Wt., 5 ounces. 12% wing section, 8% stabilizer.

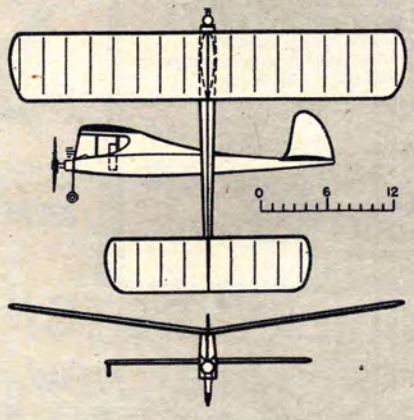
Wayne Schindler flew this promising Half-A PAA-Load Compact design. Thin wing and tail section; clean fuselage. One wheel and skid used. Design won numerous meets.

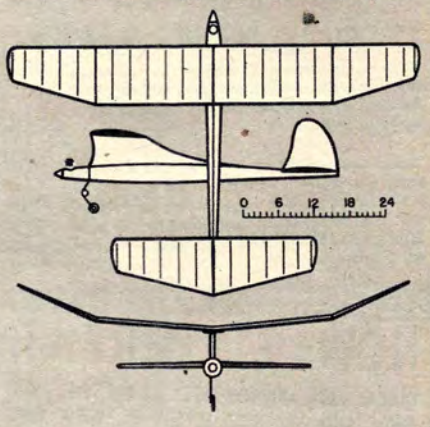


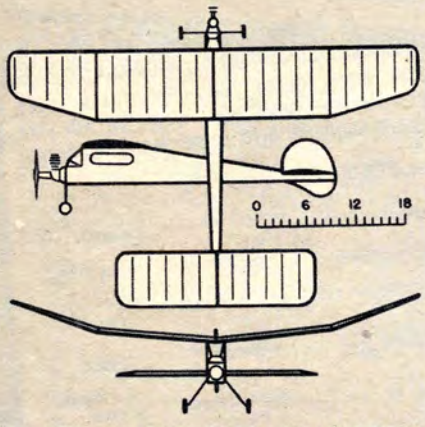
Dennis Davis' "Mini PAA-GAN" featured "Hoganamic" warp-free wing, stab construction. Low dihedral, large stab combine with long moment arm for good glide.

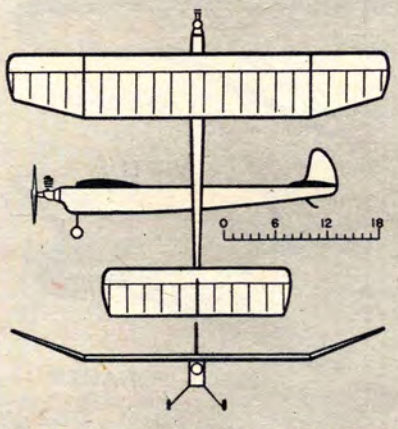
Sal Taibi's "streamlined machine shop." Features machined motor mount, cowl and spinner ring. Planked round fuselage. Shock-absorbing gear. Thin profile pylon fuse.

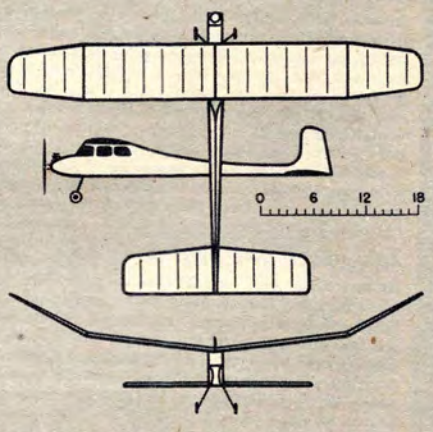












Taibi's C1. A winner. Simple cabin, sheet sides. 360 sq. in. wing, good glide. Arden .099 with plastic prop; terrific climb. 11% original section, 8% stab. 3rd in ROW.

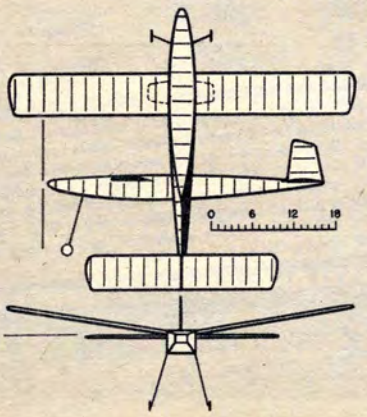
Entry by Unknown Flyer. Shoulder wing with detachable surfaces. Fuselage built in jig, covered with 1/32 in. sheet. Prop from 1¾ x 2 x 20 in. blank; 24 strands ¼ in. T-56.

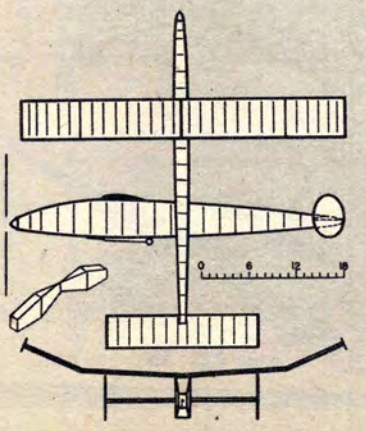
A Ted Grzeszczak design: PAA cargo. Carried 15 oz. for 38 sec. when it hit antenna of Navy truck. Placed 3rd with 11 oz. on previous flight. Sheet balsa fuselage, thin wing.

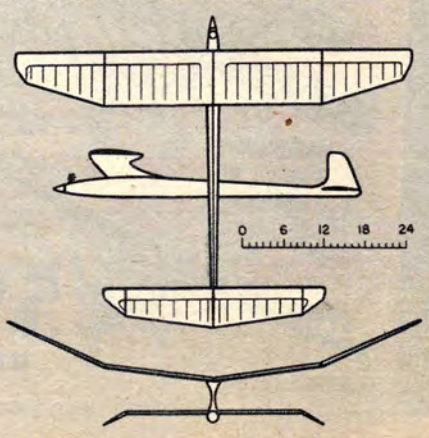
W. A. Teague, Jr., flew this smooth rubber job. High-pitch prop worked well on 20 strands of 3/16 in. Dunlop, 48 in. long, non-tensioned. Prop 1¼ x 1½ x 18 in. blank.

Lew Mahieu's fine Half-A for standard free flight—or as PAA-Load. Named "Zuina" (I'd zuina win than not?) Quarter-size version of big model. Smooth flying job.

One of most beautiful was Alberto Vela's stable free flight. Arrow-like climb, excellent glide. Typical of Mexican entries: extreme tail moment arm and generous dihedral.







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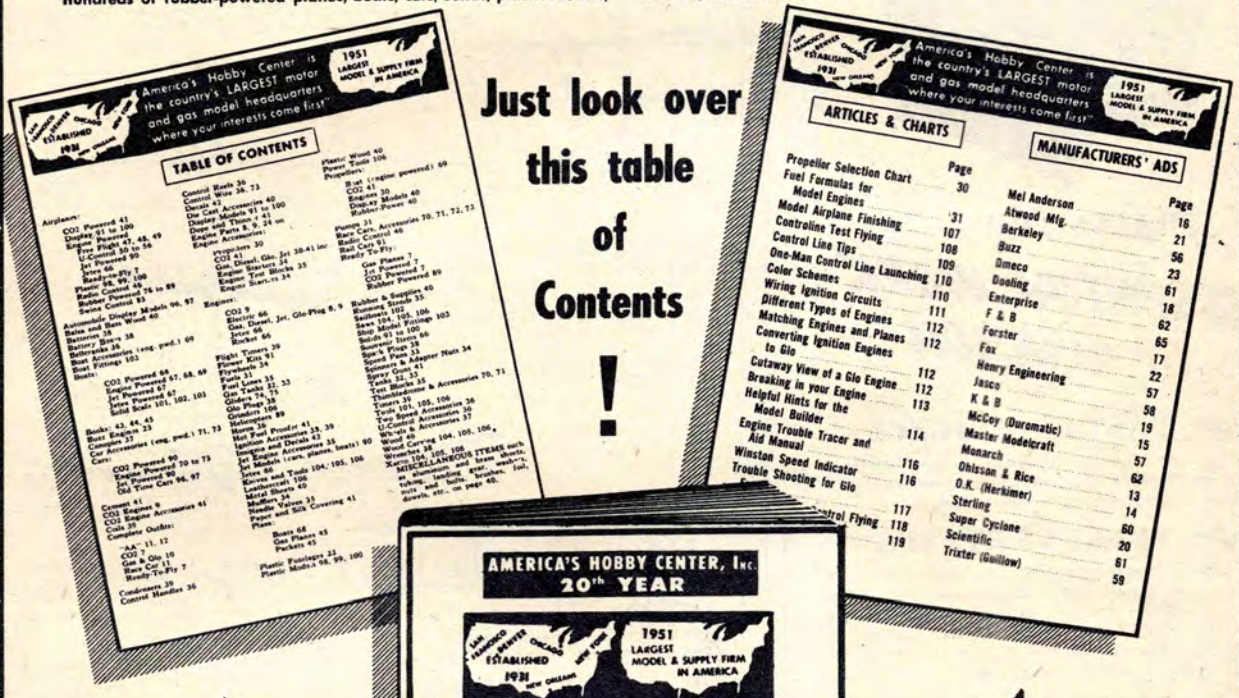

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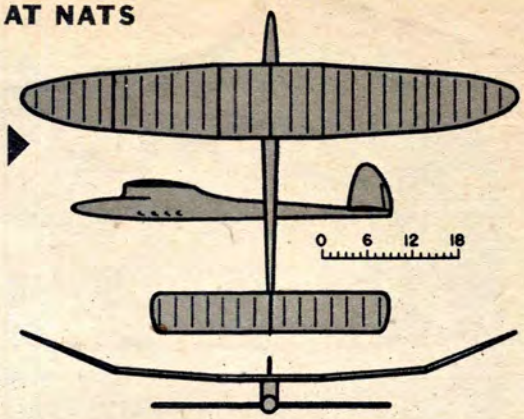
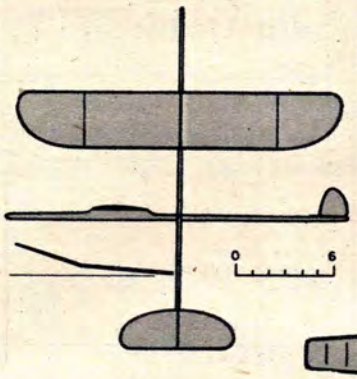
SN3

AIR-MODEL DESIGN AT NATS

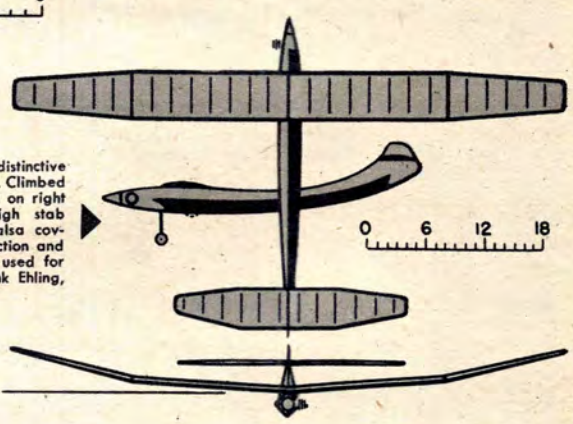
Wayne Schindler's towline entry was outstanding for its very flat glide. Model was free flight Cumulus fuselage and wing with balsa nose! Side hooks used for straight or slight-right towing launch. Model glides to the left. Fuselage covered with sheet balsa, nose is solid balsa. Had NACA 6409 wing section and Clark Y stab. Schindler is noted for consistent gliding

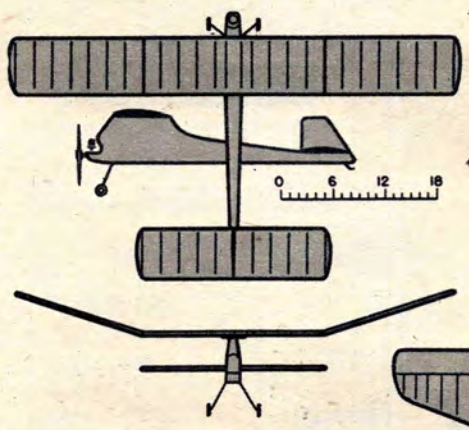




Another design by AT's Dick Everett—a model with very slow glide. This "El Lobo" placed 2nd indoors, 2nd outdoors. For outdoors weighted .87 oz., indoors, .83 oz. Tail shortened 3 in. for indoor flying.

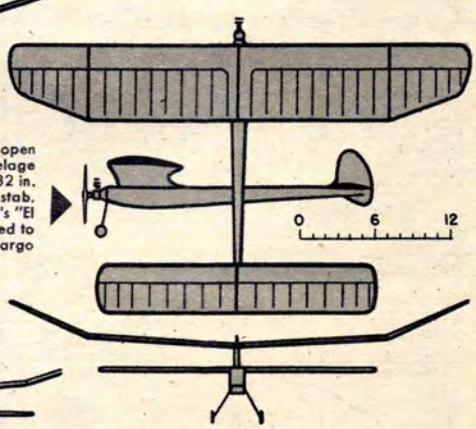
Ted Grzeszczak's "Slowpoke" with a distinctive upswept fuselage was lost on test flight. Climbed to left, glided to left. Slight wash-out on right wing half. Engine side-mounted. High stab worked out well. Fuselage was sheet balsa covered for front ⅓rd. Thin 6% wing section and 8% stab combination. Froom spinner used for cowling. Ted is flying partner of Frank Ehling, both of Jersey City, N. J.

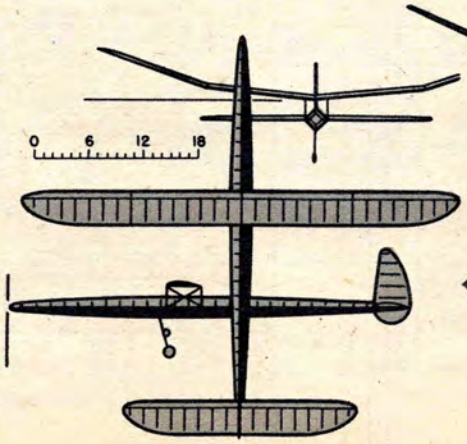




This is Ernie Shailor's very successful Class B free flight which has won numerous big meets, including the Nationals, and has set numerous Michigan state and U. S. records. Ernie hails from Detroit. Simple, straightforward design. Two-wheel gear for assured take-off. Moderate tip dihedral and normal tail moment arm combined with moderate stab area add up to quick recovery. Fuselage outline gives pylon effect with more pleasing cabin-like lines. Model will appear in detailed plans in forthcoming issue of Air Trails or new Air Trails Annual.

Everett again! This time his "El Gobo" which took open event with 22:05. Weight, 5½ oz.; sheet balsa fuselage sides. Wing and stab leading edges covered with 1/32 in. sheet balsa. Gott. 602 on wing thinned to 8% on stab. Used Torp, 6/3 Top-Flite prop, Ultraglow fuel. Dick's "El Cargo" version was similar model with 10 inches added to span. That job placed third in Pan American's Cargo event carrying 11 ounce load.





They're getting longer by the minute! Some unsung hero had this job entered in the outdoor rubber event; sorry to say we missed his name. Anyhoo, it's a long nose affair that flew smoothly and required no downthrust. Prop block was 2 x 3 x 18 inch block and the model was powered by 24 strands of ¼ in. T-56 brown rubber. It flew in the Unlimited Rubber class with weight of 13 ounces. Gear was used for landing purposes only; the bend in the single wire gear for spring purposes. This year's Nats saw quite a few of the Cole-type "Pogo Stick" designs.

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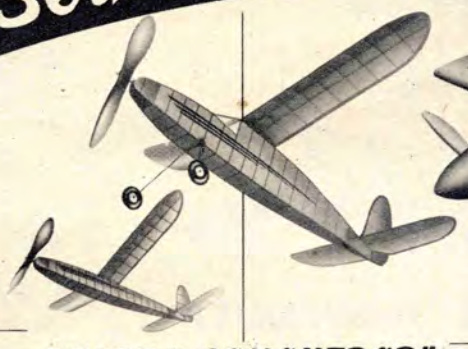

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Also builds stick model using same wing, tail and prop.

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For .09 to .36 Engines—28" Wingspan

This famous "Goodyear" racer is perfect for controline team racing and precision flying. The "Step-Keel" fuselage construction cuts building time to the bone. Plastic cowls, wheel pants, canopy, complete hardware, "U-Control" system and die-cut parts are features of this kit.

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Half-A Twin

(*Continued from page 47*)

other control line job, and the same procedure may be used at all times. Single engine operation is good on either port or starboard engines; however, it is best not to try any of the more complicated maneuvers on one engine for safety's sake.

First fill the fuel tanks and make sure that the fuel lines and needle jet are clear by looking for fuel in the venturi; however, do not flood the engines by forcing too much fuel through the lines. For the first start, it is best to work on one engine at a time, get it started and adjusted properly. Just slightly rich is usually best. Next shut this engine off by squeezing the fuel line with pliers, leaving the needle valve alone. Now the same procedure can be used to adjust the second engine, and you are ready for flight.

Starting the engines for flight is about the same as before except that they should not need further adjusting. The method here is to top off the fuel tanks with fuel, noting that a little fuel has passed through the lines in the process to prove that they are clear. Next the engines should be primed with a drop or two in the exhaust and also the venturi—both being primed at the same time. Now the outboard engine is started, and when it is running smoothly the inboard one also; this, usually, is very quick if the procedure has been followed faithfully; no further adjustments should be necessary.

With all this out of the way, the only thing left is to have a lot of fun in flying the ship. When the engines finally do cut you will notice that the outboard engine quits first, as it was the first started, giving you a safety factor for those tough spots you are bound to get into!

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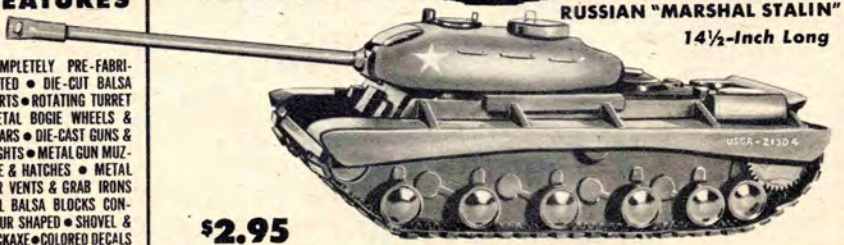

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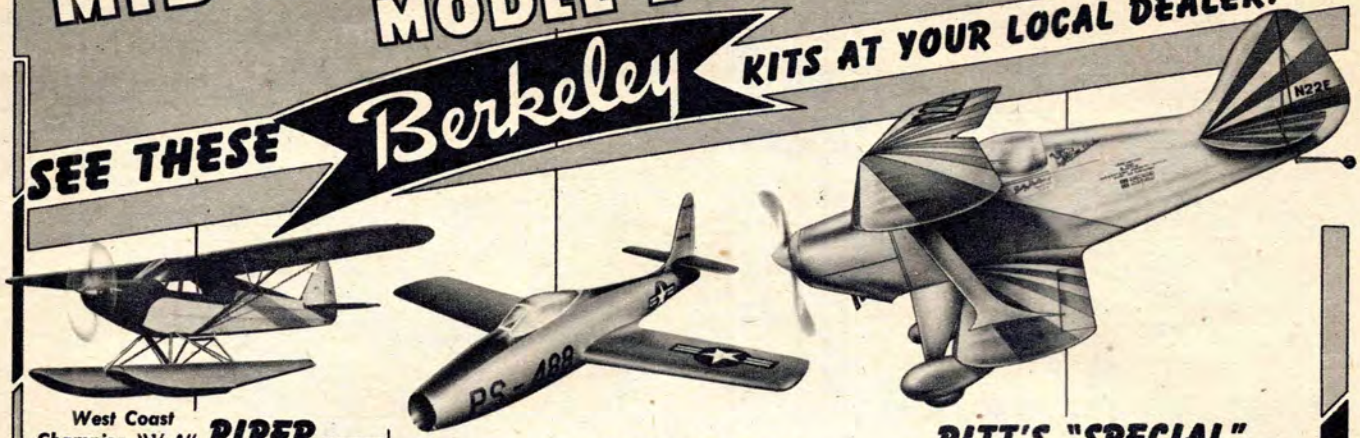

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First light plane to fly around the world. Plans show details for making seaplane floats. Landplane material included in the kit.

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For .19 to .33 Engines—25½" Wingspan

A beautiful exact scale replica of Betty Skelton's Championship Stunt Bipe. Perfect for controline flying, this prefabricated kit covers complete with metal cowl; pants, oil drip pan, bubble canopy, decals, hardware wheels, Jim Walker U-Control System and all wood parts cut to shape.

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Dope Can

News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas

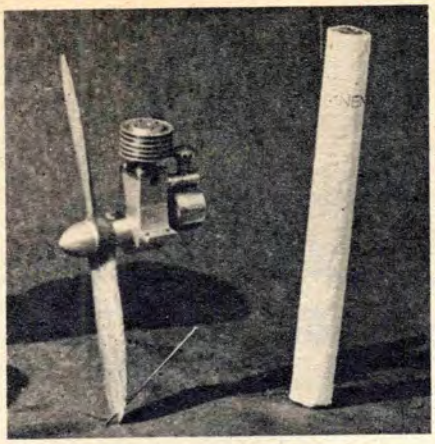
■ There was nothing wrong with the contest season just passed that a few rule changes can't correct.

The greatest need for some new thinking concerns the regulation which stipulates that the flyer must have built the model he or she is entering. This is an absurd, outmoded rule. For the only way to enforce it is to install a policeman in every basement, garage and hobby room in the nation to keep an eagle eye on modelers and take action if Johnny helps Jimmy with his Class D free flight wing.

(*"Your honor, I saw this Johnny with my own eyes cut out the ribs for Jimmy's wing. This is a direct violation of A.M.A. rule #so-and-so, paragraph such-and-such!"*

"Guilty! You do thirty days or thirty minutes with an indoor model.")

This particular raise-your-right-hand - and - say - you - built - that model-yourself regulation has been on the books for a long while. When-



So you've seen small motors? This Mikro diesel has but .3 cc disp., weighs 6 grams, does 8,000 rpm. Built by German modeleer.

ever anyone disputes it, some learned observer is always standing by to say, "It's not the rule so much that's important, it just makes the majority think right."

Phooey.

To our way of thinking that rule cannot be enforced. If you can't enforce a rule why have it? We say let anyone fly any model he wants (with a single exception which we will take up later on) regardless of who built it (as so many are doing today). The skilled contender who builds and flies his own models will still have an edge on the "store-boughten" or "chum-borrowed" entry and we won't be making liars out of a considerable number of flyers who remind us of the new neighbor who borrows a cup of sugar here and a peck of potatoes there—and so on. You know the fellow we refer to: let me borrow your Torp for the meet? Gonna use that dolly or can I take it along?

Pause for a one-minute tableau. The characters are Joe and Jerry. Says Joe, entering Jerry's garage: "Hi ya, sport! Guess what? My Dad just said I could borrow the car and go to the Nats. George Greaseball's going too. How about it—did your vacation come through? Can you come with us?"

"Darn it all, no," replies Jerry with a real note of sadness. "My de-

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LENGTH 26"

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"SPORTSMAN 30"

For .020 to .049, Rubber & CO_2 Power

Plans cover gas, CO and rubber power for this newly modernized favorite. It's a perfect flyer and easy to build. Kit comes complete with cut-out balsa parts.

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For .035 to .049 Engines—40" Wingspan

This "½A" version of the Mirror Model Flying Fair PAA-Load winner was designed by Henry Struck. Perfect for the new PAA-Load rules, the model features "Auto-Semble" construction. Wheels, hardware, die-cut balsa and plywood parts, plans and instructions are included.

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Britisher A. Piacentine with Cl. B team racer at '51 West Essex Gala (English meet). Event catching on with up to .29 motors.

partment's behind schedule, there's a new fighter contract going through, and the big brass wants the rough specs 'yesterday.' Gee, and I had my mind all made up to get to the Nationals. Looka those ships, all tested and ready to win—well, at least a third in every class if you want to pin me down."

"Golly, that's a rough deal, Jerry. I've been so busy helping Dad down at the shop I've only got a Half-A and B job ready and George wants to take off tomorrow after work. 'Course, I can put an .09 in the small crate and fly in three classes, but I'd sure like to take a crack at 'C' flying against all those so-called experts."

"Well—hey, Joe. Why don't you take this new ship of mine? If I can't go in person at least I'll have the

Ken Brooks, pres. of Britain's Society of Model Aeronautical Engineers (akin to AMA) with solid Dove by Polish pilot.

satisfaction of knowing that one of my ships competed in the National meet. And who knows, maybe you—plus it—can bring home the bacon. What do you say. . . .?"

"Gee . . . I dunno . . . that's mighty kind, Jerry, but I'd hate to take that beautiful job and smear it all over the landscape for you. Besides, you're supposed to build your own models—or so I seem to have read somewhere."

"Heh—and I say again, 'Heh'—you've known plenty of cases where one guy flew another guy's ship. Listen, nobody'll know the difference, and what if you do cream it—you're better at adjusting than I am any day in the week. Here take 'er"—Jerry removes the Class C model from the hook on the beam overhead—"and good luck. Wish I was going. Oh—take off my address slip there and put on this blank A.M.A. certificate of ownership with your own name and address. But if you win, Coke's on you!"

End of epic.

Now, we put it to you, kind reader. Was Jerry being a good sport or a cheat? And how many times a year do you think similar scenes are repeated coast-to-coast, border-to-border?

With so many prefabbed kit models showing up at the meets, we have another reason to forget about this you-build-it-or-else rule. The majority (*Continued on page 75*)

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For .045 to .099 Engines

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OR YOUR MONEY BACK!

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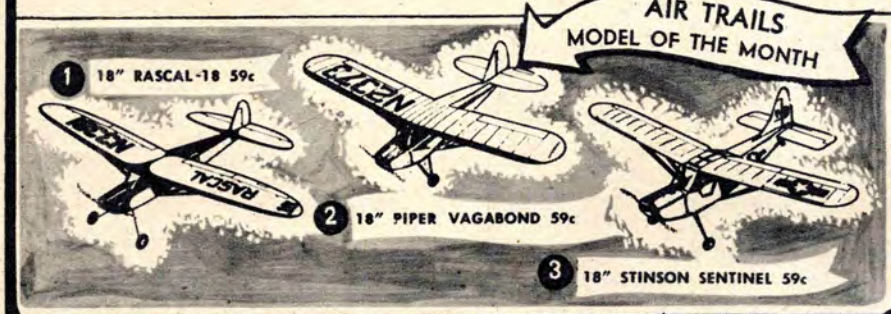
If you are in 6th grade or higher—if you want the double thrill of completing a model and flying it—get busy today. Go to your model dealer, pick out one of these TOP FLITE JIGTIME models and be sure to follow the simple step-by-step plans. We *guarantee* you'll have fun building your model and that the completed model will fly or *your money back!*



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■ With so much interest springing up in Half-A flying scale we deemed it necessary to take in the 2nd Annual Inglewood Flightmasters' contest. To say that we were pleasantly surprised is to put it mildly.

They had as many entries as were entered in both Sr. and open rubber flying scale at the Nats—and this only a club contest. Their scoring system was rather unique and is adapted very well to these small models. It is possible to get 1050 points for a perfect flight with a perfect model. The only thing which seems amiss is the subtraction of 20 points if one does not have plans. The rule should probably read that

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1909 Stanley Steamer $2.95 1911 Buick "Bug"—$2.50 1910 Model "T" Ford $2.50

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34" Wingspan

Newest addition to this line, it can be flown as a land or seaplane. Material is included for a landplane only.

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plans must accompany each model for judging—no plans, no points for the model.

As can be readily seen from the following award points this gang has very seriously studied the models and awards the most points where the work is the hardest. These points are for construction only. Proportions: fuselage, 50 points; wings, 40; (*Continued on page* 72)

Completely planked, aluminum foil covered F-51 by Ken Aymeyer. Span more than 4 ft. Half-A engine; shock-absorbing l. g.

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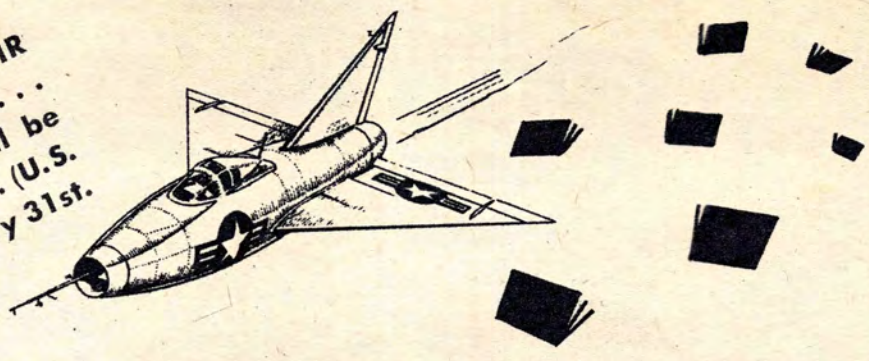

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F. A. I. Meet

(*Continued from page 44*)

low-speed aerodynamics. The extremely wide trailing edge member made of very thin ply was flexible, a feature they claim made for stability and a reduction in drag. No part of this model was orthodox. The tiny tailplane had a sharp dihedral angle and the fin was so small as to be almost unnoticed. Without doubt, however, it won the contest on sheer glide performance merit, rather than thermal assistance.

The first round of the contest was flown off in ideal conditions and nearly one-third of the models all recorded maximum times. Weather had deteriorated for the second round and the only entrant to follow up a first-round maximum with a repeat performance was Ray Monks of Great Britain.

Two of the Yugoslav team members flew models with a very low margin of weathercock stability. Instead of a normal fin, keel area aft of the wings is provided by deepening the fuselage into a fishtail shape. This gives sufficient stability for tow launching while in free flight models of this type tend to wander or circle in either direction. On striking a thermal they invariably appear to tighten up their turn into a thermal-holding circle.

Last year's winner, Bernfest of Yugoslavia, flew his 1950 model featuring a dihedraled tailplane and no vertical fin area. He had trouble, however, with tow launching and recorded three moderate flights only, but very consistent. Each flight was a matter of a few seconds on either side of three minutes, and it is an indication of the high standard of flying that Bernfest, with an aggregate in excess of nine minutes, placed only nineteenth in the final listing. Apart from the first round, weather conditions for the remainder of the

(*Continued on page 68*)

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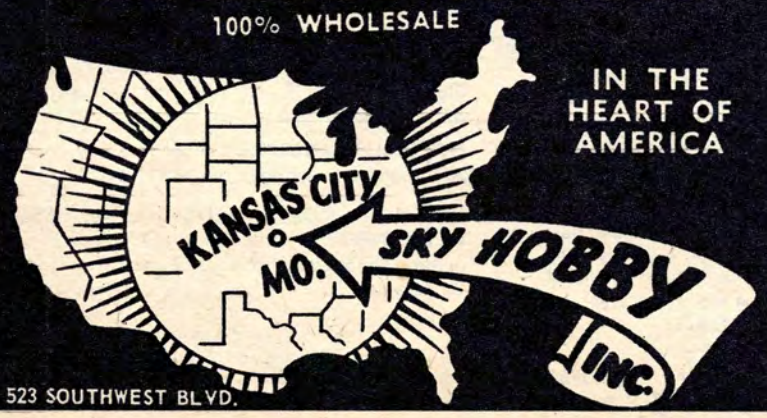

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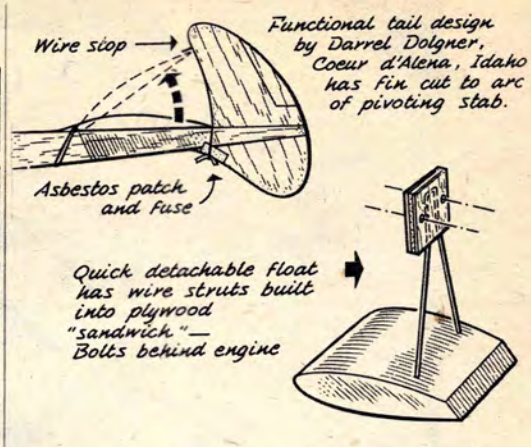

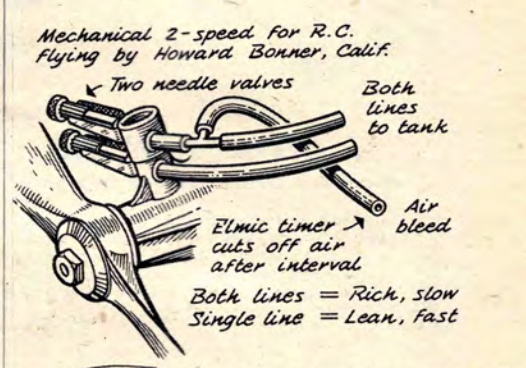

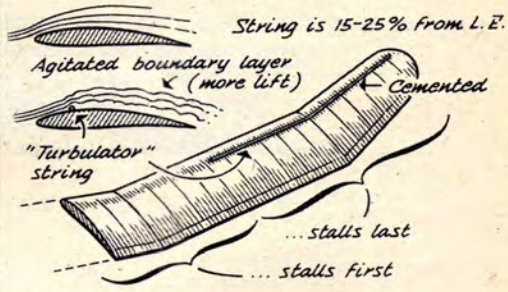

Dick Everett's turbulator strings — Said to add lift, postpone stalls...

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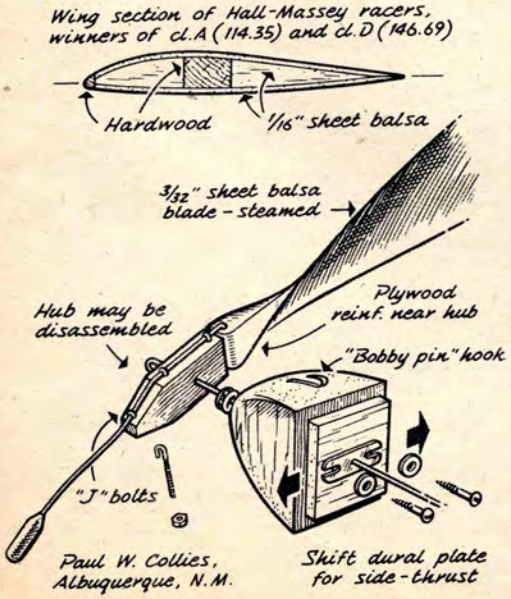

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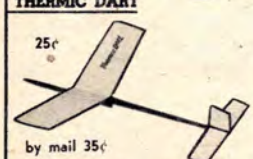

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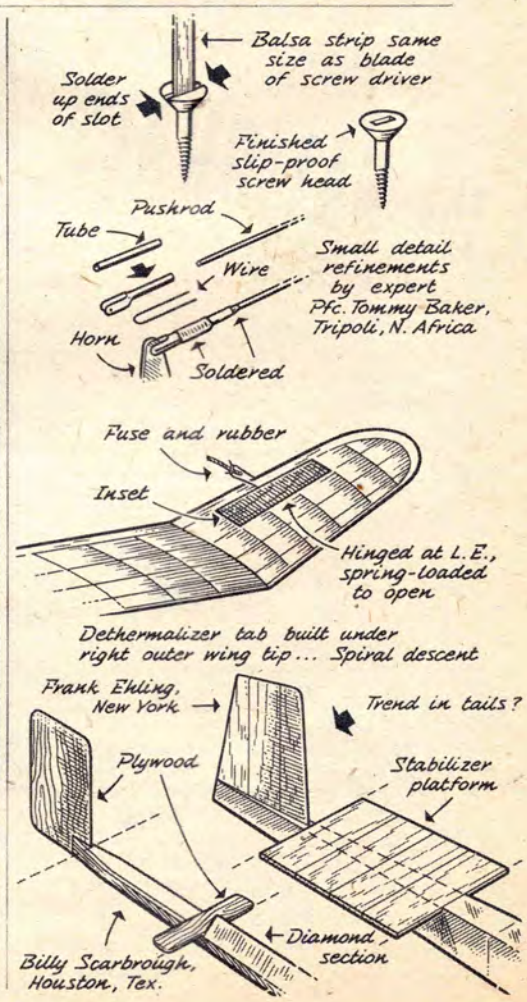

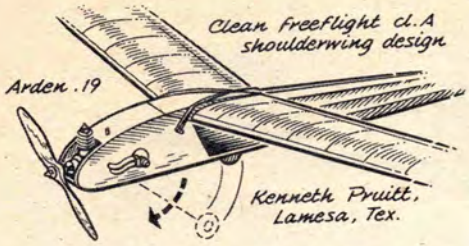

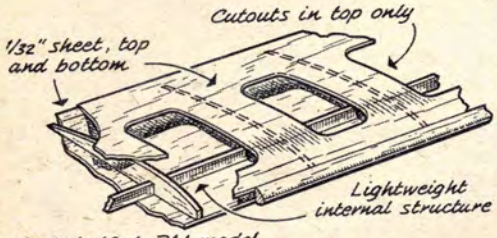

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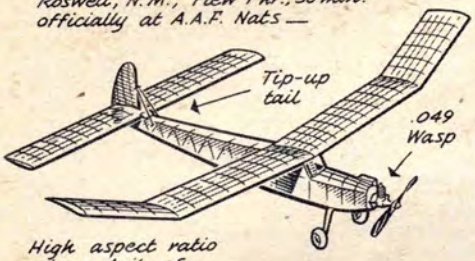
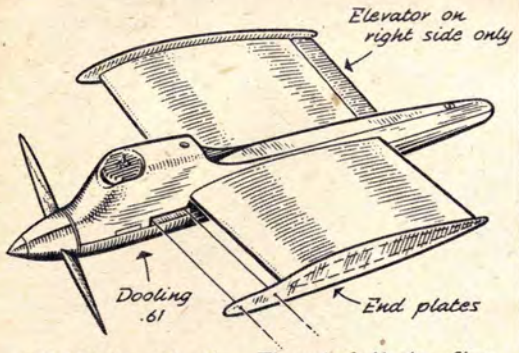


High aspect ratio wings, tail of multi-stringer construction...



M/Sgt. Walter Johnston, Elmendorf, Alaska, flew wierd speedster 124+ m.p.h. — Dural bottom.

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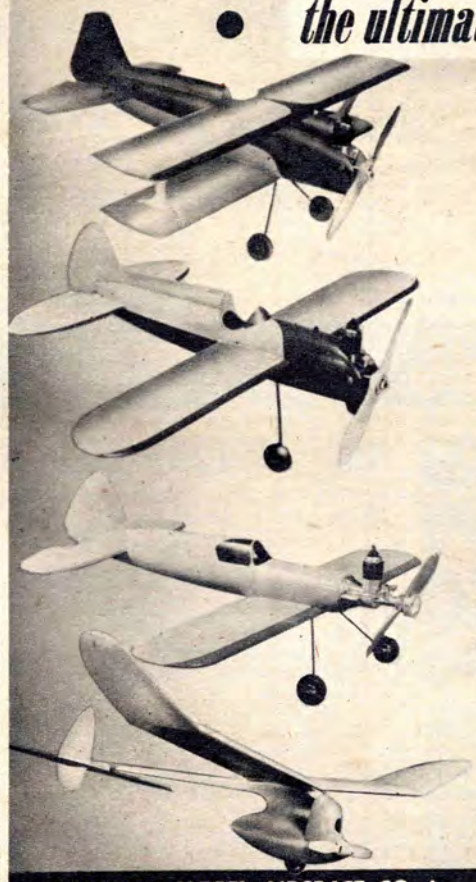

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(*Continued from page 63*)

contest were not particularly good.

Third place model flown by Arne Hansen of Denmark was typical of Scandinavian design, with a moderate moment arm, large, rectangular wing and only tip dihedral on the last six inches or so of the span. Stability was excellent, both in free flight and when being towed. Two other Danish models of similar design placed ninth and twelfth.

Notable for their excellent workmanship were the (West) German models. West Germany, together with Austria, has only recently been admitted to the Federation Aeronautique Internationale; both would appear to be well set toward making themselves felt in the future International field. The 1952 Swedish Cup will be held in Austria, where the home-produced designs built specifically to suit their own conditions may again score. Both of these countries have expressed their intention of entering the 1952 Wakefield, and already two-meter-long Austrian Wakefields are flying!

On a team basis, Yugoslavia easily outdistanced the field with a three-flight, four-man team aggregate of 2,552 seconds, representing an average flight of over 3½ mins. for each of their contest attempts. Denmark placed second on a team basis, with Great Britain third. Team ratings are unofficial, for the Swedish Cup is an individual contest.

An International free flight gas contest held as a supporting contest at the end of the meet produced relatively poor flying, by comparison. Limited to a maximum motor capacity of 2.5 cc. under F.A.I. International rules, most of the models were grossly underpowered for their size, by contemporary American standards, and gained all too little height during the 20 secs. motor run permitted. French power model expert Jacques Morisset was a comparatively easy winner with a three-flight aggregate of 686 seconds. Yugoslav modelers,

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flying American-style pylon models, placed second and third.

Swedish Cup Results

1. Oskar Czepa, Austria—871 secs. (aggregate 3 flights)
2. Ljube Petkovski, Yugoslavia—800 secs. (aggregate 3 flights)
3. Arne Hansen, Denmark—797 secs.
4. R. C. Monks, Great Britain—754 secs. (aggregate 3 flights)
5. Pierre Serres, France—725 secs. (aggregate 3 flights)
6. Andre Avents, Belgium—698 secs.

National Placings

Austria: 1, 32, 35.
Yugoslavia: 2, 13, 17, 19.
Denmark: 3, 9, 12, 40.
Great Britain: 4, 14, 28, 29.
France: 5, 20, 26, 42
Belgium: 6, 15, 34, 38.
West Germany: 7, 30, 33, 36.
Sweden: 8, 16, 25.
Holland: 10, 11, 23, 31.
Switzerland: 18, 22, 39, 41.
Finland: 21, 24, 27.

"Jezebel"

(Continued from page 36)

flattening a short piece of 1½" aluminum tubing and cementing inside the exhaust port. Roughen the surface of the aluminum with sandpaper and use Weldwood to hold in place. Cut out the inside of the cowl bottom, and the fuselage bottom just to the rear of the cowl for cooling air exhaust. The cooling air exhaust opening should be larger than the intake to provide maximum cooling efficiency. Paint the inside of the engine compartment with Weldwood.

The entire ship should be finished with a bright fuel-proof paint. Use

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a bright color such as white, yellow, cream, or orange, so the ship will stand out against any background while flying.

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Korker

(*Continued from page 49*)

effective but not critical during the power-on part of the flight.

If you like a nice wide lazy circular glide and your field is large enough to handle it, the trim tab will be sufficient. However, if you need a tight turn in the glide, add a *small* amount of modeling clay to one wing tip. Strange as it seems, to force a model into a *left* turn, add weight to the *right* wing tip. This also works in reverse. In theory, you are displacing the C.G. and creating an unbalanced drag condition which makes the model turn. The real effectiveness of this weighting will only be noticed in the glide because under power the engine thrust will overcome the slight change in C.G.

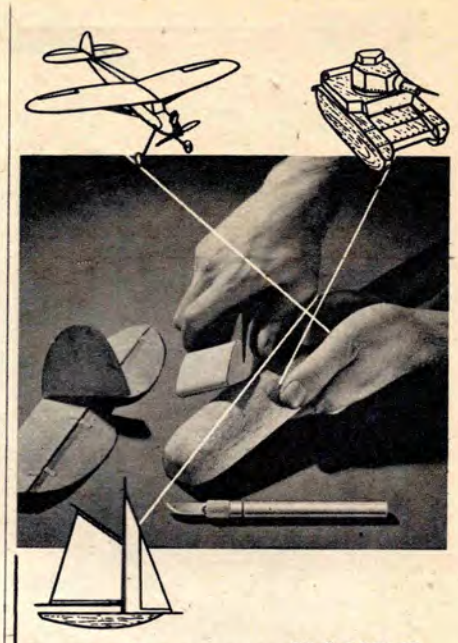
Using too much clay may cause the weighted wing tip to drop and may end up in a spiral dive. A little practice and several flights will help you determine the correct amount of clay for your desired turn.

Western

(*Continued from page 61*)

tail, 40; landing gear, 40. Structures: fuselage, 30; wing, 30; tail, 30; landing gear, none. Details: fuselage, 40; wing, 30; tail, 30; landing gear, 30. Engine and cowl: 80. Cabin and/or cockpit interior: 30. Dihedral: 50. Finish and covering: 80. Marking, color, trim: 50.

All this looks very sensible since the points seem to be awarded proportionately to the amount of work done on each section. The fuselage certainly is the hardest part to build and takes the most time. The reason for the few points for the landing gear is quite obvious—not much work here.



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For flying the rules deviate greatly from those used in all other contests. The Flightmasters very wisely decided to use the ratio system that the Brain-Busters used for so many years. They take the motor run, divide it into the total flight time. An official flight is one of 10 seconds duration. The engine run is not limited but the total flight time is five minutes. Last but not least, a maximum of 300 points is awarded for the highest ratio while all others get points in proportion. By that they mean that if a fellow has a ratio of 3 and is highest, he gets 300 points. If the next highest is 2.68, this man gets 268 points; likewise a ratio of 1.00 would give 100 points.

This seems to be the ultimate in rules since it gives every model a chance. Some models are large, some are small, some heavy, some light, consequently they need a longer motor run to get up. By using the unlimited run a larger variety of models has a chance. An F-51 has as much chance as an old Cub, and an Ercoupe as good a chance as a Piper Super Cruiser. Then, again, they allow you as many attempts as you may want to put in three flights. Which might make some contests run indefinitely, so perhaps they will do something about this.

The unlimited attempts and the judging that necessarily take a long time were the only things which prolonged this contest. The judging could be the day before and cut down on time needed on the day of the contest. The unlimited attempts is one point this writer would like to see left in the rules since these models are tricky to say the least; after a fellow has spent the time required to build one he should be given every break to show what the model will do.

Since the rules also state that a model is given 50 bonus points for a take-off, quite a few modelers R.O.G.'ed their ships. Walt Mooney who flew a Bleriot IV had what was probably the most realistic take-off. His ship was a little underelevated due to too much down-

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thrust, which caused it to make long runs before being airborne into a shallow climb. More than one expert model builder was heard to remark that he could very easily visualize the ship crossing the Channel. Whether this particular Bleriot was ever used for such a flight or not was immaterial. The flights were really sweet.

At this contest took place what was undoubtedly the finest display of sportsmanship we have ever seen. Walt Mooney broke the shaft on his Wasp and tried in every way possible to get a new engine for his ship, but none seemed to be available until Louis Culler, who was in first place in the contest, came up and offered Walt his engine. This is not the end of this story. Mooney was the only person who had a chance in beating Louis. When Walt had trouble, who do you think ran the engine and supplied the tools necessary to install it? That's right, it was Louis.

Now for the ships. They all displayed the usual fine California workmanship and all were kept light. Most had a good finish, Culler getting just one point under maximum for both his ships. In the way of criticism, the only thing which stopped some fellows from finishing higher was lack of experience in adjusting ships to fly free flight. Some had engine trouble. Bill Tharp's Torp .035 was acting up. Mooney didn't get one flight with a good run. S. Estrada of Navion fame also had a sick engine. Ken Aymeyer and Ced Galloway suffered adjusting trouble.

Culler's winning Cub Super Cruiser was the same ship he used in winning last year's contest. Powered with a Wasp, the take-offs and flights were as realistic as possible. Louis used plug-in wings held in place with a rubber band running through the fuse. Engine completely cowled, needle valve adjusted with a screw driver. His Ercoupe was powered with a Torp .035 and was built from Cleveland plans, but seemed to be overpowered. Every place there was

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metal on the original ship, Louis used wood planking. He had real good cockpit details with the same type plug-in wing.

Walt Mooney's Bleriot IV of 1908 vintage was amazingly life-like. Since the original ship was built of spruce, the fuse wire braced and the entire ship white, Walt had a very easy time simulating original construction, with a thread-braced fuse, guyed wing which had a fuselage separation, the original airfoil. Another pleasing detail for the scale builder was a V-8 engine with an extension shaft which allowed him to put in the complete engine and still have the Wasp up front. The nearly 40% horizontal tail helped in flight immeasurably. The tryke gear was unorthodox since there were two wheels up front and one back, about halfway on the fuse.

Dope Can

(*Continued from page* 59)

of modelers no longer "build"—they "assemble." And we say that's okay—no complaints in that direction, at least from us. So less and less original work is being done. Mr. Testor molds the fuselage sides for you, Mr. F&B even glues the sides together. Jim Walker asks only that you slip the wing and one or two other parts in place on his Firebaby. Can I fly my Firebaby in your meet, Mr. Contest Director? And why not, sonny? Well, I didn't build it. Jim, the genius, did. Forget it, kid. Nobody will complain.

As far as the owner-builder-flyer rule is concerned we suggest:

1. The flyer need not be the builder of the model (with one exception, still to be mentioned).

2. In control line flying, the entrant must do the flying. In cases of a team, the age category of the team depends

(*Continued on page* 77)

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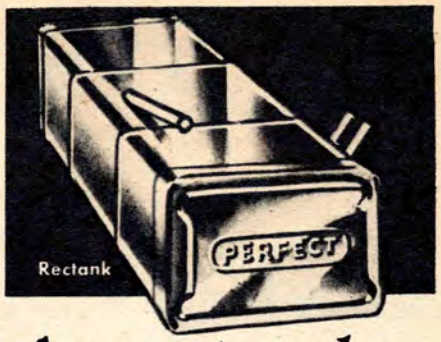

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6	3/4	5/8"	1-1/16"	2"	up to .29	49c
7	2/3	1"	1-1/2"	1-1/4"	up to .23	49c
8	1-1/4	1"	1-1/2"	2"	up to .35	49c
9	2	1"	1-1/2"	3"	up to .39	59c
10	2-1/3	1-1/8"	2-1/4"	2"	up to .51	59c
11	4	1-1/8"	2-1/4"	3-1/2"	up to .65	69c
12	2-1/2	1-1/4"	1-5/8"	2"	up to .51	59c
13	3-3/4	1-1/4"	1-5/8"	3"	up to .65	69c
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(*Continued from page 75*)

upon the age of the actual flyer.

3. In free flight flying, gas category, the flyer must start and adjust his engine himself. In the rubber events, the flyer must wind the rubber motor himself.

Ah, ha, sez you. How about the case of the 5-year-old flyer whose Dad doesn't want him to fiddle with the engine because the boy's too small? Might get hurt, etc. Okay, let's be frank. The kid didn't build the model—everybody knows that—so why permit the old man to crank up the motor, adjust it, hand it to the kid and tell the youngster in what direction to point it? All the lad serves as is a proxy launcher. But in control line—things are different. The lad's great-grandfather may have built the model and poured $500 into it, but if the youngster can't handle it in the air it's soon all too obvious from the heap of scrap that soon results.

Now to the exception, and we bet you guessed it. Flying scale. For F/S, either free flight rubber or gas, or control line, we suggest a very strongly worded rule that the entrant must have built the model himself. Furthermore, we propose that the entrant be required to submit a filled-in form issued by A.M.A. signed by himself and a parent as well if he be under 21, and notarized. Said statement to call for info to the effect: 1) that the entrant built the model himself; 2) what plans used; 3) what kit used (if any); 4) what modifications to said plan and/or kit; 5) source of plans. Also, the *working* plans must accompany the model as well as copies of any other plans used to authenticate the design. No statement and no plans: no dice. Model won't be considered for judging, won't be permitted to fly in the meet.

Sounds harsh? Then did you ever think of the tremendous task imposed on judges when modelers show up in a F/S meet *without* plans.

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Take-off Troubles. Let's consider that ROG rule for free flight gas. Now, maybe you heard a few of the hassels that resulted last contest season when some modelers came out with designs having "droop" stabs—cathedral (negative dihedral). Some event directors let such models take off scraping the ends of the stab along the ground. Others made the modelers add a wire skid to each stab tip. Although a fairly small amount of work is involved, it is maddening to go from contest to contest and find the interpretations of regulations change like the wind.

We object violently to that "normal attitude" stuff—there is no longer any such thing. Big-size deltas take off and land at degrees up to 35, convertaplanes with their vertical take-offs are just around the corner, so who are we to say what a normal attitude of a model may be—or the AMA contest board for all that matters? We've long felt that a more common sense approach to the ROG problem is required.

Here's one suggestion. The model must have gear capable of permitting it to take off unassisted from the same position in which it lands. Thus, in cases of doubt, the entrant must glide the model from a height of not less than 6 feet. Its at-rest landing position is noted, then the engine is fired up and the model ROG'ed with no assistance

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from the same relative position (direction can be changed on account of wind). Anything hard about that? Two things would be required—the C/D would have to provide a *smooth* test landing spot; the modeler would have to lock his retractable in open position (if he was using one) for the landing test.

Combat flying is a good example of an event that has come up rapidly with little recognition from the Academy. We've been writing of combat events in these columns for several years, yet they are not a part of the official Nationals, because the AMA hasn't gotten around to adding a combat category even though it has about 24 obsolete indoor endurance classes.

Combat competition is getting off to a peculiar start. In several contests we've seen the best flyers eliminated. One contender will fly low and slow and take little aggressive action. The other entrant takes the iniative and eventually creams his model in complete frustation trying to make a fight out of a contest where one man won't "put up his dukes," so to speak.

If a combat round begins and it soon appears that one flyer is not going to uphold his share of the strikes, then the round should be quickly terminated, the non-aggressor eliminated and the lad with the initiative given the nod *before he wrecks his model because of no competition.* We have seen more models splattered because one man wouldn't fight than when two hot shots have been pitted against one another.

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Flying Wing Design

Design criteria which all may use to build stable flying wing models

By ROBERT L. BROWN

■ Richard Earl Prout while an engineering student at the Northrop Aeronautical Institute produced a *completely* stable flying wing capable of 80 mph despite the fact that neither the design nor the powerplant was selected with speed as an objective.

The unusual stability of Prout's design is due to his use of *zero pitching moment airfoils throughout the span* (reflex trailing edge type), and to the center of gravity placement at the leading edge of the mean aero-dynamic chord (not 25% back, at the usual C.P. position). Also, *no twist* is used in the wing as this would prove undependable in a racing design.

Other characteristics of the wing are quite normal. Sweepback of the leading edge is 30 degrees; sweep-back of the trailing edge is 20 degrees. The two control lines come out of one hole *slightly aft* of the C.G. to cause the model to yaw away from the center of the circle. Just to "play safe," Dick included a drag tab on the outside wing.

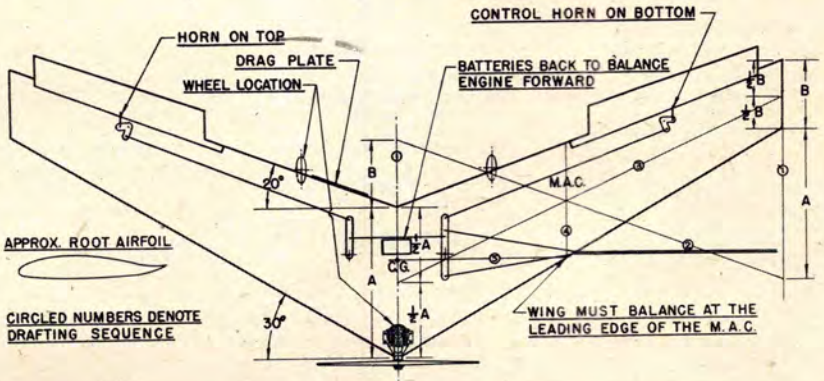
The model sits level for take-off with a ground angle of zero degrees. No downthrust or upthrust is used. The elevon area is large and can be moved 15 degrees. The wing has a span of 52" and an aspect ratio of about 7. The root thickness is 20% of the chord length; the tip thickness is 12%.

To achieve the correct C.G. location without additional weights, the engine must be mounted forward, powering a tractor propeller; an extension shaft might be needed in some designs. If a pusher design is contemplated, an extension shaft *must* be used to place the C.G. in the necessary forward position.

Prout feels that sweepback angle may be varied considerably if the C.G. is located correctly. He suggests, also, that a stunt model of extreme agility can be had by moving the C.G. slightly aft (5% of the M.A.C. as a maximum) through the addition of small pieces of lead. Richard's "wing" deviates from the usual flying characteristics by "ballooning" (lifting) from ground effect when landing. Otherwise, the ship handles in a completely normal manner.

Although the model was flown "U" control, there is no doubt that with the addition of dihedral and a slight upthrust (reverse of downthrust) to prevent stalling under power, the model would fly successfully free-flight. A single rudder or slightly toed-in tip rudders might not be necessary because of the inherent directional stability of the "swept" wing, added to a further directional effect produced by the wing in a sideslip.

Existence of the N.A.C.A. "H" series, zero pitching-moment airfoils (Report L-452 or C.B. No. 3113) was not known to Prout at the time he built the model. However, he (*Continued on page 82*)



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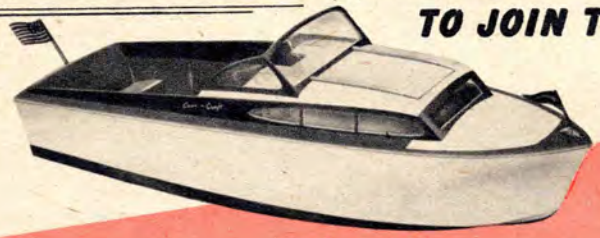

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Flying Wing

(*Continued from page 81*)

duplicated this type section closely by reflexing the trailing edge of an N.A.C.A. 230 series airfoil. This reflexed airfoil was used throughout the span. Incidentally, the importance of the "H" series airfoils is now being proved in ex-modeler Roy Marquardt's man-carrying pulse-jet helicopter. His helicopter was the first to use these dependable airfoils.

Symmetrical airfoils have zero pitching moment, but are not as suitable to flying wing design as the "H" series because of the *neutral stability* possessed by the symmetrical sections. A section having neutral stability exerts no recovering force once displaced.

Flying wings of small size powered by heavy engines are less stable due to gyroscopic and inertia forces of the engine, and to the diminished number of air molecules which can adhere to the smaller wing surface. The slight movement of a heavy engine, mounted in a small wing, is accompanied by large inertia forces which tend to pull the wing farther out of the intended line of flight. The gyroscopic forces produced by the propeller and crankshaft have a greater unstable effect on small wings because of their smaller inherent resistance to displacement. Since air molecules are of uniform size, fewer of them can adhere to a small wing than to a large one, thus diminishing stability.

The minimum size for a stable flying wing using a powerful engine like a Fox, McCoy, Hornet, or Dooling, is not known. A four-foot span, as on Dick Prout's wing, can be used with safety. The feasibility of smaller spans is promising, but must be proven by test.

Flying wings are about 25% faster than conventional airplanes of the same power due to the great reduction in parasitic drag.

In designing flying wings, the tips should be raked slightly so that the contour meets the trailing edge parallel to the airstream. Briefly, the air should not pull away from the wing at the trailing edge, as this merely changes laminar flow into turbulent flow and increases tip vortices.

Furthermore, in fairing your power nacelle into the wing (in the plan view) do not use the usual nacelle shape. After the nacelle reaches maximum width let the mold lines remain parallel or expand even more as they continue backward to the trailing edge. The cross-section of the nacelle will progress from a circle, to an ellipse, to a straight line. This shape prevents turbulent flow, as the mold lines do not converge after reaching maximum width.

At average model Reynold's numbers, laminar flow invariably changes to turbulent flow slightly before reaching the point of maximum thickness. To the rear of the "hump" turbulent flow is almost always present. Therefore, for minimum drag, the portion of any streamlined body ahead of the maximum thickness should be as long as possible. That is, it should be a large percentage of the length of the body (50% to 70%). In fact, aerodynamicists point out that a body, for least drag, should be cut off at the maximum cross-section, and jet and rocket engines mounted in the aperture. This shape would have no converging after-body.

In Prout's test model, the elevons are hinged at the trailing edge of the wing; 1/32" sheet covers a wing of conventionally spaced ribs (to preserve reflex trailing edge). One main spar and a sub spar support the ribs.

In a new model Prout contemplates three-spar, two-crib construction with a thick skin to preserve true airfoil contours. Elevons will be built-in, but will not be full-span elevon positions. Bear in mind that part of the span should hold the correct angle of reflex for the trailing edge at all times.

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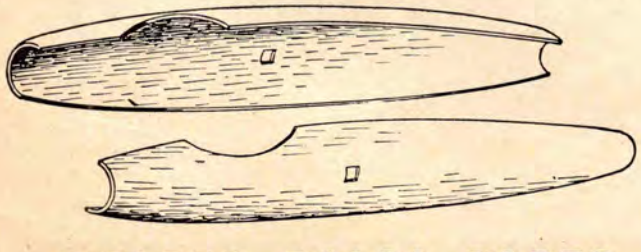

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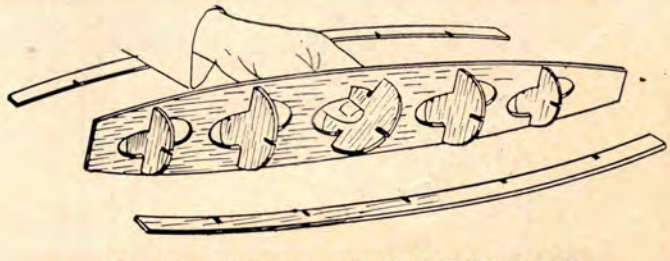

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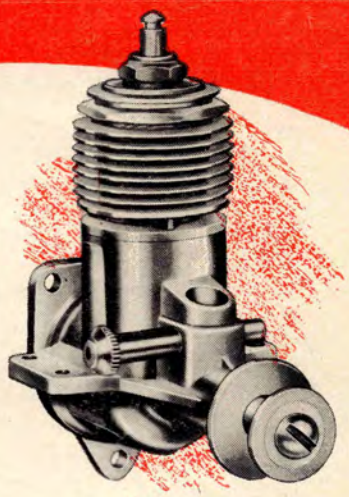

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